



# Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #178 - February 2022



## UBUNTU UNITY 21.10 UNITY DESKTOP LIVES ON

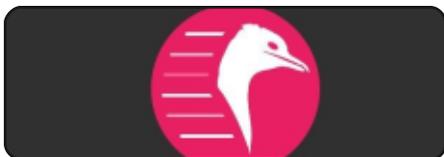
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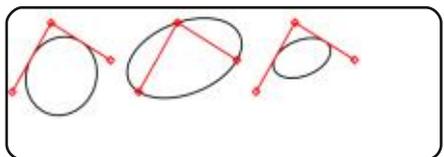
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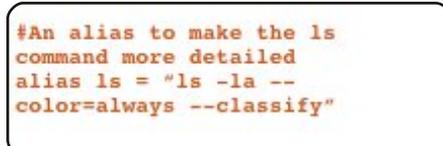
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# Full Circle

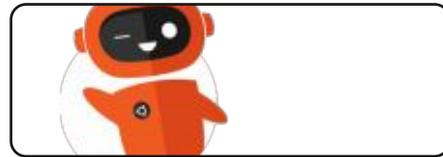
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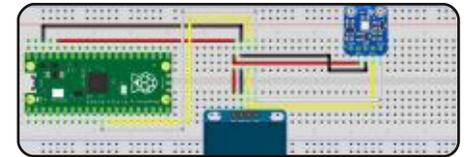
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## WELCOME TO THE LATEST ISSUE OF FULL CIRCLE

Yes, welcome! As ever, we have Python, Inkscape, and Micro articles. We have more Blender and more history of the GUI. And... we have a third HowTo! Yes, some of you kind people sent in articles! So, hopefully, we can return to having three HowTo articles every month.

I want to thank everyone who sent in an article for publication. I really REALLY appreciate it. You really are helping keep FCM going. But I want more. **MORE! MORE!** The more articles I receive, the more I can print. So, let's keep it going. **PLEASE**, spend a few moments to write SOMETHING about what you know. It can be ANYTHING as long as it has something to do with Linux; hardware/software reviews, a how-to on something, even your story of how you found Ubuntu/Linux (of any flavor). Send whatever to: [ronnie@fullcirclemagazine.org](mailto:ronnie@fullcirclemagazine.org)

Don't forget: if you're looking for some help, advice, or just a chit chat: remember, we have a **Telegram** group: <https://t.me/joinchat/24ec1oMFO1ZjZDc0>. I hope to see you there. Come and say hello.

**Anyway, stay safe!**

Ronnie

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## SUSE RELEASES RANCHER DESKTOP 1.0:

01/28/2022

SUSE has announced the release of Rancher Desktop 1.0.0, an open source application that provides a graphical interface for creating, running, and managing containers based on Kubernetes. The 1.0.0 release is marked as stable and marks the transition to a development process with a predictable release cycle and periodic corrective updates. The program is written in JavaScript using the Electron platform and distributed under the Apache 2.0 license.

Rancher Desktop is similar to the proprietary product Docker Desktop and differs mainly in the use of the nerdctl CLI and runtime containerd to create and run containers, but in the future, Rancher Desktop plans to add support for Docker CLI and Moby. Rancher Desktop allows you to test containers and applications designed to run in containers on

your workstation through a simple graphical interface before deploying them to production systems.

Rancher Desktop allows you to select a specific version of Kubernetes to use, test your containers with different versions of Kubernetes, instantly launch containers without registering with Kubernetes services, build, get and host container images, and deploy your application in a container on the local system (network ports associated with containers are only accessible from localhost).

[https://www.suse.com/c/rancher\\_blog/rancher-desktop-1-0-0-has-arrived/](https://www.suse.com/c/rancher_blog/rancher-desktop-1-0-0-has-arrived/)

## RQLITE 7.0, A DISTRIBUTED FAULT-TOLERANT DBMS:

28.01.2022

The distributed DBMS rqlite 7.0 is out, which uses SQLite as a storage engine and allows you to organize the operation of a cluster from storages synchronized with

each other. Features of rqlite; it is easy to install, deploy and maintain a distributed fault-tolerant storage, somewhat similar to etcd and Consul, but using a relational data model instead of a key/value format. The project code is written in Go and distributed under the MIT license.

The Raft consensus algorithm is used to keep all nodes in sync. Rqlite uses the original SQLite library and the go-sqlite3 driver, on top of that runs a layer that processes client requests, performs replication to other nodes and monitors the consensus on the choice of the leader node.

Changes to the database can only be made by the node that is selected as the leader, but write connections can be directed to other cluster nodes, which will return the address of the leader to repeat the request (they promise to add automatic forwarding of the call to the leader in the next version). The main emphasis is on fault tolerance, so the DBMS scales only on reads, and writes are the

bottleneck. It is possible to run an rqlite cluster from a single node and such a solution can be used to provide SQLite access over HTTP without providing fault tolerance.

The SQLite data on each node is not stored in a file, but in memory. At the layer level with the implementation of the Raft protocol, a log is kept of all SQLite commands that lead to a database change. This log is used for replication (replay level replication on other nodes), when starting a new node, or for recovering from a loss of connectivity. To reduce the size of the log, automatic packaging is used, which starts after a specified number of changes and leads to the commit of a snapshot, relative to which a new log is started (the state of the database in memory is identical to the snapshot + the accumulated change log).

<https://www.philipotoole.com/rqlite-7-0-designing-node-discovery-and-automatic-clustering/>

## RELEASE OF NITRUX 2.0:

30.01.2022

Nitrox 2.0.0, built on Debian, KDE technologies and the OpenRC initialization system, is available. The distribution develops its own desktop NX Desktop, which is an add-on for the KDE Plasma user environment, as well as the MauiKit user interface framework, which is a set of typical user applications is developed that can be used on both desktop systems and mobile devices. To install additional applications, AppImage is being promoted. The boot image size is 2.4 GB.

NX Desktop offers a different styling, its own implementation of the system tray, notification center and various plasmoids, such as a network connection configurator and a multimedia applet for volume control and media playback control. Among the applications created using the MauiKit framework; the Index file manager, the Note text editor, the Station terminal emulator, the Clip music player, the VVave video player, the NX Software Center application control center and the Pix image viewer.

The Maui Shell user environment, currently a separate development, which automatically adapts to the screen size and available input methods, and can be used not only on desktop systems, but also on smartphones and tablets. The environment develops the concept of "Convergence", which implies the ability to work with the same applications both on the touch screens of a smartphone and tablet, and on large screens of laptops and PCs. The Maui Shell can be launched either with its Zspace composite server using Wayland, or by running a separate Cask shell inside an X server-based session.

<https://nxos.org/changelog/release-announcement-nitrox-2-0-0/>

## MINETEST 5.5.0, AN OPEN SOURCE CLONE OF MINECRAFT:

31.01.2022

Minetest 5.5.0, an open cross-platform version of the MineCraft game, which allows groups of players to jointly build various structures from standard blocks that form a semblance of a

virtual world (sandbox genre). The game is written in C++ using the Irrlicht 3D engine. The Lua language is used to create extensions. The Minetest code is licensed under the LGPL, and the game assets are licensed under CC BY-SA 3.0. Minetest ready builds are created for various distributions of Linux, Android, FreeBSD, Windows and macOS.

<https://forum.minetest.net/viewtopic.php?f=18&t=27754>

## FALKON 3.2.0 BROWSER DEVELOPED BY THE KDE PROJECT:

31.01.2022

After almost three years of development, the Falkon 3.2.0 browser was released, which replaced QupZilla after the project was taken over by the KDE community and development was transferred to the KDE infrastructure. The project code is distributed under the GPLv3 license.

New in this release comes an integrated ad blocking subsystem (AdBlock). For blocking, you can use

both external blacklists (EasyList by Adblock Plus), and add your own ad blocking rules; now making it useable as a daily driver.

<https://www.falkon.org/>

## RELEASE OF TINY CORE LINUX 13:

31.01.2022

Tiny Core Linux 13.0, a minimalistic Linux distribution, has been released and can run on systems with 48 MB of RAM. The graphical environment of the distribution is based on the TinyX X server, the FLTK toolkit and the FLWM window manager. The distribution is loaded entirely into RAM and runs from memory. The new release updates system components including Linux kernel 5.15.10, glibc 2.34, gcc 11.2.0, binutils 2.37, e2fsprogs 1.46.4, util-linux 2.37.2 and busybox 1.34.1.

The bootable iso image is only 16 MB. For 64-bit systems, a CorePure64 build is also available, with a size of 17 MB. Additionally, a CorePlus build (160 MB) is supplied, which includes a number of additional packages, such as a set

of window managers (FLWM, JWM, IceWM, Fluxbox, Hackedbox, Openbox), an installer with the ability to install additional extensions, as well as a ready-made set of tools to provide exit to the network, including a manager for setting up Wifi connections.

<http://forum.tinycorelinux.net/index.php/topic,25531.0.html>

## TRISQUEL 10.0 FREE LINUX DISTRIBUTION AVAILABLE:

01.02.2022

The completely free Linux distribution Trisquel 10.0, based on the Ubuntu 20.04 LTS package base and focused on use in small businesses, educational institutions and home users, is out. Trisquel is personally endorsed by Richard Stallman, officially recognized as

completely free software by the Free Software Foundation, and placed on the foundation's list of recommended distributions. Installation images are available for download, 2.7 GB and 1.2 GB in size (x86\_64, armhf). The release of updates for the distribution will be available until April 2025.

The distribution is notable for the exclusion from distribution of all non-free components, such as binary drivers, firmware, and graphics, distributed under a non-free license or using registered trademarks. Despite the complete rejection of proprietary components, Trisquel is compatible with Java (OpenJDK), supports most audio and video formats, including working with protected DVDs, while using only completely free implementations of these technologies. Desktops offered are

MATE (default), LXDE, and KDE.

<http://trisquel.info/en/>

## GNU SCREEN 4.9.0 CONSOLE WINDOW MANAGER RELEASED:

01.02.2022

After two years of development, the terminal multiplexer, GNU screen 4.9.0 has been published, which allows using one physical terminal to work with several applications, which are allocated separate virtual terminals that remain active between different user sessions. See our command and conquer.

[http://savannah.gnu.org/forum/forum.php?forum\\_id=10107](http://savannah.gnu.org/forum/forum.php?forum_id=10107)

## WESTON COMPOSITE SERVER 10.0 RELEASED:

02.02.2022

After a year and a half of development, a stable release of the Weston 10.0 composite server has been published. They develop technologies that contribute to the emergence of full support for the Wayland protocol in Enlightenment, GNOME, KDE and other user environments. Weston's goal is to provide a high quality code base and working examples for using Wayland in desktop environments and embedded solutions such as platforms for car infotainment systems, smartphones, TVs and other consumer devices. The project code is distributed under the MIT license.

<https://lists.freedesktop.org/archives/wayland-devel/2022-February/042103.html>

## LIBREOFFICE 7.3 OFFICE SUITE RELEASED:

02.02.2022

Ready-made installation packages have been prepared



# DistroWatch.com

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

for various distributions of Linux, Windows and macOS by the Document Foundation. 147 developers participated in the preparation of the release, of which 98 are volunteers. 69% of the changes were made by employees of the companies in charge of the project, such as Collabora, Red Hat and Allotropia, and 31% of the changes were added by independent enthusiasts.

The LibreOffice 7.3 release is labeled "Community", will be supported by enthusiasts, and is not aimed at enterprises. LibreOffice Community is available without restrictions for free to everyone without exception, including corporate users. For enterprises that need additional services, products of the LibreOffice Enterprise family are being developed separately, for which partner companies will provide full support. There is the ability to receive updates for a long time (LTS) and additional features, such as SLA (Service Level Agreements).

<https://blog.documentfoundation.org/blog/2022/02/02/libreoffice-73-community/>

## SLACKWARE 15.0 DISTRIBUTION RELEASED:

04.02.2022

**M**ore than five years since the last release, Slackware 15.0 is out. The project has been developing since 1993 and is the oldest of the existing distributions. An installation image (3.5 GB) is available for download, prepared for the i586 and x86\_64 architectures. To get acquainted with the distribution without installation, a Live image (4.3 GB) is available. A selection of additional packages with programs not included in the standard distribution can be found in the slackbuilds.org repository.

Despite its considerable age, the distribution was able to maintain its originality and simplicity. The lack of complexity and the simple initialization system in the style of classic BSD systems make the distribution an interesting solution for learning how Unix-like systems work, experimenting and getting to know Linux. The main reason for the long life of the distribution is the inexhaustible enthusiasm of Patrick Volkerding, who has been

the leader and main developer of the project for almost 30 years.

In developing the new release, the main focus was on providing new technologies and up-to-date versions of programs without violating the identity and characteristics of the distribution. The main goal was to make the distribution more modern, but at the same time maintain the usual way of working in Slackware.

<http://www.slackware.com/releases/15.0.php>

## IGALIA INTRODUCED WOLVIC, A WEB BROWSER FOR VIRTUAL REALITY DEVICES:

04.02.2022

**I**galia, known for its contributions to open source projects such as GNOME, GTK, WebKitGTK, Epiphany, GStreamer, Wine, Mesa, and freedesktop.org, has unveiled a new open source web browser, Wolvic, designed for use in virtual reality systems. The project will continue the development of the Firefox Reality browser, previously developed by Mozilla, but has not been updated for about a year. The

Wolvic code is written in Java and C+, and distributed under the MPLv2 license. Builds available of the first pre-release Wolvic are for the Android platform and support Oculus, Huawei VR Glass, HTC Vive Focus, Pico Interactive and Lynx 3D headsets. Work is underway to port the browser for Qualcomm and Lenovo devices.

The browser uses the GeckoView web engine, a variant of Mozilla's Gecko engine packaged as a separate library that can be updated independently. Management is carried out through a fundamentally different three-dimensional user interface, which allows you to navigate through sites within the virtual world or as part of augmented reality systems. In addition to a 3D helmet-driven interface that lets you view traditional 2D pages, web developers can use the WebXR, WebAR, and WebVR APIs to create custom 3D web applications that interact in virtual space. It also supports viewing spatial videos shot in 360-degree mode in a 3D helmet.

<https://www.igalia.com/2022/02/03/Introducing-Wolvic.html>

**CASSOWARY PROJECT:**

05.02.2022

The Cassowary project is developing a toolkit that allows you to work with Windows programs running in a virtual machine or metal as if they were native separate applications on the Linux desktop. Windows programs are launched through a shortcut in the Linux environment and open in separate windows, similar to standard Linux applications. The opposite is also supported - Linux programs can be called from the Windows environment.

The project offers applications for setting up a virtual machine with Windows and organizing access to application windows. To start the virtual machine, virt-manager and KVM are used, and FreeRDP is used to access the program window. A graphical interface is provided for setting up the environment and forwarding the windows of individual applications. The project code is written in Python (GUI based on PyQt5) and distributed under the GPLv2 license.

<https://github.com/casualsnek/cassowary>

**RELEASE OF OS QUBES 4.1:**

05.02.2022

After almost four years of development, Qubes 4.1 was released, which implements the idea of using a hypervisor for strict isolation of applications and OS components (each class of applications and system services run in separate virtual machines). It requires a system with 6 GB of RAM and a 64-bit Intel or AMD CPU with support for VT-x c EPT / AMD-v c RVI and VT-d / AMD IOMMU technologies, an Intel GPU is recommended (NVIDIA and AMD GPUs are not well tested). The size of the installation image is 6 GB.

Applications in Qubes are divided into classes depending on the importance of the data being processed and the tasks being solved. Each class of applications (e.g. work, entertainment, banking) as well as system services (network subsystem, firewall, storage, USB stack, etc.) run in separate virtual machines that run using the Xen hypervisor. At the same time, these

applications are available within the same desktop and are highlighted for clarity in different window frame colors. Each environment has read access to the underlying root FS and local storage that does not overlap with the storages of other environments; a special service is used to organize application interaction.

<https://www.qubes-os.org/news/2022/02/04/qubes-4-1-0/>

**GNOME COMMANDER 1.14****RELEASED:**

06.02.2022

GNOME Commander 1.14.0, a dual-pane file manager has been released, optimized for use in the GNOME user environment. GNOME Commander introduces features such as tabs, command line access, bookmarks, changeable color schemes, directory skipping mode when selecting files, access to external data via FTP and SAMBA, expandable context menus, automatic mounting of external drives, access to navigation history, support plug-ins, a built-in text and image viewer, search functions, renaming by mask

and directory comparison. The project code is written in C++ and distributed under the GPLv2 license.

<http://qcmd.github.io/>

**KASPER, A SPECULATIVE CODE EXECUTION PROBLEM SCANNER:**

05.02.2022

A group of researchers from the Free University of Amsterdam has published a tool called Kasper that is designed to identify code snippets in the Linux kernel that can be used to exploit Specter class vulnerabilities caused by speculative code execution by the processor. The source code of this toolkit is distributed under the Apache 2.0 license.

In order to carry out attacks such as Specter v1, which make it possible to determine the contents of memory, a certain sequence of commands (gadgets) is required in the privileged code, leading to the speculative execution of instructions. In order to optimize, the processor starts executing these gadgets in a speculative

mode, then determines that the branch prediction has not been justified and rolls back the operations to their original state, but the data processed during the speculative execution settles in the cache and microarchitectural buffers and is available for extraction from them using various methods determination of residual data through third-party channels.

When testing, the kernel contacts the Kasper runtime libraries and checks that work at the LLVM level. During the check, speculative code execution is emulated using the checkpoint-restore mechanism, which specifically executes an incorrectly predicted code branch, after which it rolls back to its original state before the branch began. Kasper also tries to model various software and hardware vulnerabilities, analyzes the influence of architectural and microarchitectural effects, and performs fuzzing testing of possible attacker actions. For analysis of execution flows, the DataFlowSanitizer port for the Linux kernel is used, and for fuzzing testing, a modified version of the syzkaller package .

<https://www.vusec.net/projects/kasper/>

## ABSOLUTE LINUX 15.0

### RELEASED:

05.02.2022

After 6 years, (Slackware 14.2 - 15 though Absolute has been rolling) the lightweight Absolute Linux 15.0 distribution based on the Slackware 15 codebase has been released. The distribution's graphical environment is based on the IceWM window manager, the ROX Desktop, and the qtFM and arox (rox-filer) file managers. It uses its own (non-slackware) configurator for configuration. The package includes applications such as Firefox (Chrome and Luakit are optional ), OpenOffice, Kodi, Pidgin, GIMP, WPClipart, Thunderbird, K3B, Frostwire and Deluge. The size of the iso image is 2.38 GB (x86\_64).

<https://www.absolutelinux.org/>

## RELEASE OF OPENMANDRIVA Lx 4.3:

07.02.2022

After a year of development, the release of OpenMandriva Lx 4.3 is available for download. The project is being developed by the community after Mandriva SA transferred the management of the project to the non-profit organization "OpenMandriva Association". Downloadable 2.5 GB (x86\_64) Live build "znver1" optimized for AMD Ryzen, ThreadRipper and EPYC processors, as well as images for use on PinebookPro, Raspberry Pi 4B/3B+, Rock Pi 4A/4B ARM devices /4C, Synquacer, Cubox Pulse and various Arch64 based server boards.

<https://www.openmandriva.org/en/news/article/openmandriva-lx-4-3-released>

## POSTFIX 3.7.0 MAIL SERVER:

07.02.2022

After 10 months of development, a new stable branch of the Postfix mail server - 3.7.0 was released. At the same time, the Postfix 3.3 branch, which

was released in early 2018, has been deprecated. Postfix is one of the rare projects that combines high security, reliability and performance at the same time, which was achieved thanks to a well-thought-out architecture and a rather rigid policy for coding and patch auditing. The project code is distributed under EPL 2.0 (Eclipse Public license) and IPL 1.0 (IBM Public License).

According to a January automated survey of about 500,000 mail servers, Postfix is used on 34.08% (33.66% a year ago) of mail servers, Exim's share is 58.95% (59.14%), Sendmail - 3.58% (3.6%), MailEnable - 1.99% ( 2.02%), MDAemon - 0.52% (0.60%), Microsoft Exchange - 0.26% (0.32%), OpenSMTPD - 0.06% (0.05%).

<https://www.postfix.org/>

## ALPHA-OMEGA INITIATIVE FOR OPEN SOURCE PROJECTS:

02/07/2022

The OpenSSF Foundation (Open Source Security Foundation) introduced the Alpha-Omega

project, aimed at improving the security of open source software. The initial investment for the development of the project in the amount of \$5 million and the staff to launch the initiative will be provided by Google and Microsoft. Other organizations are also invited to participate, both through the provision of engineering staff and at the level of funding, which will help expand the number of open projects that will be covered by the initiative. In addition, at the end of last year, \$10 million was allocated to the OpenSSF Foundation, whether these funds will be used for the Alpha-Omega initiative is not specified.

The Alpha-Omega project consists of two components:

- The Alpha part involves conducting a manual security audit of 200 widely used open source projects, the most popular in terms of their use in the form of dependencies or in infrastructure elements. The work will be done in collaboration with maintainers and will include systematic code reviews to identify new vulnerabilities and patch them promptly.

- The Omega part is focused on automated testing of the 10,000 most popular open source projects. A separate team of engineers will be created to conduct testing, improve applied methods, analyze test results, communicate information to project developers and coordinate joint work to eliminate critical problems. The main task of this team will be to reject false positives and identify real vulnerabilities in automated reports.

<https://openssf.org/press-release/2022/02/01/openssf-announces-the-alpha-omega-project-to-improve-software-supply-chain-security-for-10000-oss-projects/>

## INKSCAPE 1.1.2 REEASE AND THE START OF TESTING OF INKSCAPE 1.2:

06.02.2022

An update of the free vector graphics editor Inkscape 1.1.2 is available. The editor provides flexible drawing tools and provides support for reading and saving images in SVG, OpenDocument Drawing, DXF, WMF, EMF, sk1, PDF, EPS, PostScript, and PNG formats.

Ready builds of Inkscape are prepared for Linux (Applmage, Snap , Flatpak ), macOS and Windows. In the new version, the main focus was on improving stability and eliminating errors.

<https://inkscape.org/news/2022/02/05/inkscape-112/>

## KDE PLASMA 5.24 DESKTOP RELEASE:

08.02.2022

The KDE Plasma 5.24 custom shell is available, built using KDE Frameworks 5 and Qt 5 library using OpenGL/OpenGL ES for faster rendering. You can evaluate the work of the new version through a Live build from the openSUSE project and a build from the KDE Neon User Edition project. Packages for various distributions can be found on this page: <https://community.kde.org/Plasma/Packages>

<https://kde.org/announcements/plasma/5/5.24.0/>

## TAILS 4.27 RELEASED:

09.02.2022

Tails 4.27 (The Amnesic Incognito Live System), based on the Debian and designed to provide anonymous access to the internet, has been released. Anonymous exit to Tails is provided by the Tor system. All connections, except traffic through the Tor network, are blocked by default by the packet filter. Encryption is used to store user data in the 'save user data between runs' -mode. A live iso image has been prepared for download, at 1.1 GB in size.

The new release updates versions of Tor Browser 11.0.6 , Thunderbird 91.5 email client and Linux kernel 5.10.92. They improved support for graphics cards, wireless chips and other hardware. They also fixed an issue with connecting to wireless networks through the "Open Wi-Fi Settings" page in the Tor connection wizard.

<https://tails.boum.org/>

**RELEASE OF GNU BINUTILS****2.38:**

09.02.2022

The release of the GNU Binutils 2.38 system utilities set is presented, which includes such programs as GNU linker, GNU assembler, nm, objdump, strings, strip.

In the new version :

- They added support for the LoongArch architecture used in Loongson processors to the assembler and linker .
- Added "--multibyte-handling=[allow|warn|warn-sym-only]" option to assembler to select how to handle multibyte characters. Specifying warn produces a warning if there are multibyte characters in source texts, and specifying warn-sym-only produces a warning if multibyte characters are used in argument names.
- Improved support for AArch64 and ARM architectures in assembler, expanded support for system registers, added support for SME (Scalable Matrix Extension), added support for Cortex-R52+, Cortex-A510, Cortex-A710, Cortex-X2, Cortex-A710 processors, as well

as architecture extensions 'v8.7-a', 'v8.8-a', 'v9-a', 'v9.1-a', 'armv9.2-a' and 'armv9.3-a'.

- For x86 architecture, support for Intel AVX512\_FP16 instructions has been added to the assembler.
- Options added to the linker: "-z pack-relative-relocs/-z nopack-relative-relocs" to control the packing of relative address relocations (relocation) in the DT\_RELR section; "-z indirect-extern-access/-z noindirect-extern-access" to control the use of canonical function pointers and the copying of address relocation information; "--max-cache-size=SIZE" to define the maximum cache size.
- Added "--output-abiversion" option to elfedit utility to update ABIVERSION field in ELF files.
- The "--unicode" option has been added to the readelf, strings, nm, and objdump utilities to control how unicode characters are handled when outputting symbol names or strings. When "--unicode=locale" is specified, unicode strings are processed according to the current locale, "--unicode=hex" are displayed as hexadecimal codes, "--unicode=escape" are displayed as escape sequences, "--unicode=highlight" are shown as escape sequences highlighted in

red.

- In the readelf utility, the "-r" option now dumps the relocation data.
- Added support for the efi-app-aarch64, efi-rtdrv-aarch64, and efi-bsdrv-aarch64 platforms to objcopy, allowing this utility to be used when developing components for UEFI.
- Added "--thin" option to ar utility to create thin archives containing only character and link tables.

<https://sourceware.org/pipermail/binutils/2022-February/119721.html>

**MARIADB 10.7 STABLE****RELEASE:**

10.02.2022

After 6 months of development, the first stable release of the new MariaDB 10.7 (10.7.2) DBMS branch has been published, from which a branch from MySQL is being developed that maintains backward compatibility and is distinguished by the integration of additional storage engines and advanced features. MariaDB development is overseen by the independent MariaDB Foundation,

following a fully open and transparent development process independent of individual vendors. MariaDB is shipped in place of MySQL on many Linux distributions (RHEL, SUSE, Fedora, openSUSE, Slackware, OpenMandriva, ROSA, Arch Linux, Debian) and has been adopted by large projects such as Wikipedia, Google Cloud SQL and Nimbuzz.

<https://mariadb.com/resources/blog/announcing-mariadb-community-server-10-7-2-ga-and-10-8-1-rc/>

**POSTGRESQL UPDATE:**

11.02.2022

Bug-fix updates have been generated for all supported branches of PostgreSQL: 14.2, 13.6, 12.10, 11.15 and 10.20, fixing 55 bugs identified in the last three months. This includes fixes that, under rare circumstances, cause index corruption when changing HOT (heap-only tuple) chains during a VACUUM operation or when performing a REINDEX CONCURRENTLY operation on indexes to tables that use the TOAST storage engine .

They fixed crashes when executing ALTER STATISTICS and when retrieving data with multirange types, also bugs in the query planner that caused incorrect results to be displayed. This includes fixes for memory leaks when updating indexes by expressions and when performing a "REASSIGN OWNED BY" operation on a large number of objects. They also provided construction of extended statistics for sharded tables.

<https://www.postgresql.org/about/news/postgresql-142-136-1210-1115-and-1020-released-2402/>

## REMOTE VULNERABILITY IN THE LINUX KERNEL VIA THE TIPC PROTOCOL:

11.02.2022

CVE-2022-043 has been identified in the Linux kernel module that provides the operation of the TIPC (Transparent Inter-process Communication) network protocol, potentially allowing code to be executed at the kernel level by sending a specially crafted

network packet. The issue only affects systems with the tipc.ko kernel module loaded and configured with the TIPC stack, which is typically used in clusters and is not enabled by default on non-specialized Linux distributions.

The vulnerability is caused by a stack overflow that occurs when processing packets in the value of the field with the number of domain member nodes that exceeds 64. To store node parameters in the tipc.ko module, a fixed array "u32 members[64]" is used, but in the process of processing the specified in the packet The node number does not check the "member\_cnt" value, which allows values greater than 64 to be used for controlled overwriting of data in the memory area next on the stack after the "dom\_bef" structure.

The TIPC protocol was originally developed by Ericsson, is designed to organize inter-process communication in a cluster and is activated mainly on cluster nodes. TIPC can work both over Ethernet and over UDP (network port 6118). When working over Ethernet, an attack can be made from the local network, and when using UDP, from

the global network, if the port is not covered by a firewall. The attack can also be carried out by an unprivileged local user on the host.

<https://www.openwall.com/lists/oss-security/2022/02/10/1>

## RELEASE OF SLINT 0.2:

12.02.2022

With the release of version 0.2, the toolkit for creating graphical interfaces SixtyFPS has been renamed to Slint. The reason for the renaming was criticism by users of the name SixtyFPS, which led to confusion and ambiguity when sending queries to search engines, and also did not reflect the purpose of the project. The new name was chosen through a discussion with the community on GitHub, in which users suggested new names.

The authors of the library (Olivier Goffart and Simon Hausmann), former KDE developers who later moved to Trolltech to work on Qt, have now founded their own company developing Slint. One of the goals of the project is to provide the ability to

work with minimal consumption of CPU and memory resources (several hundred kilobytes of RAM are required for operation). Two backends are available for rendering - gl based on OpenGL ES 2.0 and qt using Qt QStyle.

It supports the creation of interfaces in Rust, C++, and JavaScript programs. The authors of the library have developed a special markup language ".slint", which is compiled into native code for the selected platform. There is an opportunity to test the language in the online editor or read the examples by assembling them yourself. The library code is written in C++ and Rust, and is distributed under the GPLv3 license or a commercial license that allows use in proprietary products without opening the code.

<https://github.com/slnt-ui/slnt/releases/tag/v0.2.0>

## NEW RELEASE OF UCHMVIEWER:

12.02.2022

UChmViewer 8.2 is now available, a fork of KchmViewer, a viewer for chm (MS HTML help) and epub files. The release adds support for KDE Framework 5 instead of KDE4 and initial support for Qt6 instead of Qt4. The branch is distinguished by the inclusion of some improvements that did not and most likely will not fall into the main composition of KchmViewer. The code is written in C++ and is licensed under GPLv3.

<https://github.com/gyunaev/kchmviewer>

## DINO 0.3 COMMUNICATION CLIENT RELEASED:

13.02.2022

After over a year of development, the Dino 0.3 communication client has been released, supporting chat participation and messaging using the Jabber/XMPP protocol. The program is compatible with various

XMPP clients and servers, focused on ensuring the confidentiality of conversations, and supports end-to-end encryption using the OMEMO XMPP extension based on the Signal protocol or encryption using OpenPGP. The project code is written in the Vala language using the GTK toolkit and distributed under the GPLv3+ license.

In the new version, in addition to text messages, support for video calls and video conferences is implemented, allowing you to make video calls involving two or more participants. Video streams are encrypted using end-to-end encryption, and traffic is sent directly between users in P2P mode, but as a fallback option, it is also possible to work through an intermediate server. There is also enhanced group call facilities - the user can initiate a call in a closed group or invite additional participants to an already established call. Group calls can be organized in P2P mode without involving additional servers, except for the XMPP server coordinating the connection to the conference. For conferences with a large number of participants, it's organized through a centralized server to reduce bandwidth

requirements. The exchange of keys for encrypting the traffic of participants, which are generated on the client side, is carried out via DTLS, after which the data is transmitted over an encrypted SRTP channel. The validity of the keys is authenticated using the XMPP extension OMEMO.

The XMPP protocol and XMPP generic extensions (XEP-0353 , XEP-0167) are used to establish a connection, which allows you to make calls between Dino and any other XMPP clients that support the appropriate specifications, for example, you can set up encrypted video calls with Conversations and Movim applications , as well as unencrypted calls with the Gajim app. If video is not supported, an audio call can be made.

<https://dino.im/blog/2022/02/dino-0.3-release/>

## OBS STUDIO 27.2 LIVE STREAMING RELEASE:

13.02.2022

OBS Studio 27.2 is now available for streaming, compositing and video recording. The code is

written in C/C++ and distributed under the GPLv2 license. Builds are generated for Linux, Windows and macOS.

The development goal of OBS Studio was to create a portable version of the Open Broadcaster Software (OBS Classic) application that is not tied to the Windows platform, supports OpenGL and is extensible through plugins. The difference is also the use of a modular architecture, which implies the separation of the interface and the core of the program. Supports transcoding of source streams, video capture during games and streaming to Twitch, Facebook Gaming, YouTube, DailyMotion, Hitbox and other services. To ensure high performance, hardware acceleration mechanisms (eg NVENC and VA-API) can be used.

Support is provided for compositing with building a scene based on arbitrary video streams, data from web cameras, video capture cards, images, text, the contents of application windows or the entire screen. During the broadcast, you can switch between several predefined scene options (for example, switch views with an emphasis on the screen content

and the image from the webcam). The program also provides tools for audio mixing, filtering with VST plugins, volume leveling, and noise suppression.

<https://github.com/obsproject/obs-studio/releases/tag/27.2.0>

## RELEASE OF QXKB5:

14.02.2022

Qxkb5, an interface for switching keyboard layouts that allows you to choose different behavior for different windows. The program also allows you to use both built-in graphic and text language labels. The code is written in C++ and distributed under the GPLv3 license. Very handy for those needing to switch using different apps.

<https://github.com/AndreyBarmaley/qxkb5>

## AV LINUX MX-21:

02/15/2022

The AV Linux MX-21 distribution is out, containing a selection of applications for creating/

processing multimedia content. The distribution is based on MX Linux and additional self-built packages (Polyphone, Shuriken, Simple Screen Recorder, etc.). The distribution can function in Live mode and is available for the x86\_64 architecture (3.4 GB).

The user environment is based on Xfce4 with the OpenBox window manager instead of xfwm. The package includes Ardour, ArdourVST, Harrison, Mixbus sound editors, Blender 3D design system, Cinelerra, Openshot, LIVES video editors and tools for converting multimedia file formats. The JACK Audio Connection Kit is offered for switching audio devices (using JACK1/Qjackctl, not JACK2/Cadence). The distribution comes with a detailed illustrated manual (PDF, 74 pages)

<http://www.bandshed.net/2022/02/14/av-linux-mx-21-consciousness-released/>

## ZABBIX 6.0 LTS:

15.02.2022

The release of a free and free monitoring system, fully open

source, Zabbix 6.0 LTS has landed. Release 6.0 is categorized as Long Time Support (LTS). For users who use non-LTS versions, we recommend switching to the LTS version of the product. Zabbix is a universal system for monitoring the performance and availability of servers, engineering and network equipment, applications, databases, virtualization systems, containers, IT services, web services, cloud infrastructure.

The system implements a full cycle from collecting data, processing and transforming it, analyzing this data to detect problems, and ending with storing this data, visualizing and sending alerts using escalation rules. The system also provides flexible options for extending data collection methods and alerts, as well as automation options through a powerful API. A single web interface implements centralized management of monitoring configurations and role-based distribution of access rights to various user groups. The project code is distributed under the GPLv2 license.

[https://www.zabbix.com/ru/whats\\_new\\_6\\_0](https://www.zabbix.com/ru/whats_new_6_0)

## KALI LINUX 2022.1

### RELEASED:

15.02.2022

Kali Linux 2022.1 is out, designed to test systems for vulnerabilities, conduct an audit, analyze residual information and identify the consequences of intruder attacks. All code is distributed under the GPL license and are available through the public Git repository. Several variants of iso images have been prepared for download, 471 MB, 2.8 GB, 3.5 GB and 9.4 GB in size. Builds are available for i386, x86\_64, ARM architectures (armhf and armel, Raspberry Pi, Banana Pi, ARM Chromebook, Odroid). The Xfce desktop is offered by default, but KDE, GNOME, MATE, LXDE, and Enlightenment e17 are optionally supported.

Kali includes one of the most complete collections of tools for computer security professionals, from web application testing and wireless network penetration testing to RFID readers. The kit includes a collection of exploits and more than 300 specialized security tools such as Aircrack, Maltego,

SAINT, Kismet, Bluebugger, Btcrack, Btscanner, Nmap, p0f. In addition, the distribution kit includes tools for accelerating password guessing (Multihash CUDA Brute Forcer) and WPA keys (Pyrit) through the use of CUDA and AMD Stream technologies, which allow using GPUs from NVIDIA and AMD video cards to perform computational operations.

<https://www.kali.org/blog/kali-linux-2022-1-release/>

## RELEASE OF PFSense 2.6.0:

15.02.2022

The latest release of the compact distribution for creating firewalls and network gateways pfSense 2.6.0 has landed. The distribution is based on the FreeBSD code base with the m0n0wall project and active use of pf and ALTQ. An iso image for the amd64 architecture is available for download, 430 MB in size.

The distribution is managed via the web interface. Captive Portal, NAT, VPN (IPsec, OpenVPN) and PPPoE can be used to organize the exit of users in a wired and wireless

network. Supports a wide range of options for limiting bandwidth, limiting the number of simultaneous connections, filtering traffic and creating fault-tolerant configurations based on CARP. Statistics on connections are displayed in the form of graphs or in tabular form. Authentication is supported by the local user database, as well as via RADIUS and LDAP.

<https://www.netgate.com/blog/pfsense-plus-software-version-22.01-and-ce-2.6.0-are-now-available>

## KAOS 2022.02:

17.02.2022

KaOS 2022.02 is introduced, a continuous update distribution aimed at providing a desktop based on recent releases of KDE and applications using Qt. In the distribution-specific design features, one can note the placement of a vertical panel on the right side of the screen. The distribution is developed with Arch Linux in mind, but maintains its own independent repository of more than 1500 packages, and also offers

a number of its own graphical utilities. The default file system is XFS. Images are published for x86\_64 (3 GB) systems.

<https://kaosx.us/news/2022/kaos02/>

## GNOME STOPS MAINTAINING THE CLUTTER GRAPHICS LIBRARY:

18.02.2022

The GNOME Project has deprecated the Clutter graphics library. Starting with GNOME 42, the Clutter library and its associated components Cogl, Clutter-GTK and Clutter-GStreamer will be removed from the GNOME SDK and their associated code moved to archive repositories.

To maintain compatibility with existing extensions, GNOME Shell will retain internal copies of Cogl and Clutter and continue to ship for the foreseeable future. Developers of applications that use GTK3 along with Clutter, Clutter-GTK, or Clutter-GStreamer are encouraged to migrate their programs to GTK4, libadwaita, and GStreamer. If this is not possible, then Cogl, Clutter,

Clutter-GTK and Clutter-GStreamer should be separately added as dependencies to Flatpak packages, as they will be excluded from the main GNOME runtime.

The Clutter project has been in stagnation for a long time - the last significant 1.26 release was in 2016, and the last corrective update was proposed in early 2020. The functionality and ideas developed in Clutter are now provided by the GTK4 framework, libadwaita, GNOME Shell, and the Mutter composite server.

<https://github.com/GNOME/clutter>

## 22ND UBUNTU TOUCH FIRMWARE UPDATE:

18.02.2022

The UBports project has published an OTA-22 (over-the-air) firmware update. The project is also developing an experimental desktop port of Unity 8, which has been renamed Lomiri.

Ubuntu Touch OTA-22 update is for BQ E4.5 /E5/M10/U Plus, Cosmo Communicator, F(x)tec Pro1, Fairphone 2/3, Google Pixel 2XL/3a,

Huawei Nexus 6P, LG Nexus 4/ 5, Meizu MX4/Pro 5, Nexus 7 2013, OnePlus 2/3/5/6/One, Samsung Galaxy Note 4/S3 Neo+, Sony Xperia X/XZ/Z4, VollaPhone, Xiaomi Mi A2/A3, Xiaomi Poco F1 , Xiaomi Redmi 3s/3x/3sp/4X/7, Xiaomi Redmi Note 7/7 Pro. Separately, without the "OTA-21" tag, updates will be prepared for Pine64 PinePhone and PineTab devices. Compared to the previous version, support for Asus Zenfone Max Pro M1, Xiaomi Poco M2 Pro, Google Pixel 2 and Google Pixel 3a XL smartphones has been added.

Ubuntu Touch OTA-22 is still based on Ubuntu 16.04, but lately the development efforts have been focused on preparing for the transition to Ubuntu 20.04.

<https://ubports.com/>

## WEBOS OPEN SOURCE EDITION 2.15 PLATFORM RELEASED:

18.02.2022

The open platform webOS Open Source Edition 2.15 has been published, which can be used on various portable devices, boards

and car infotainment systems. Raspberry Pi 4 boards are considered as the reference hardware platform. The platform is developed in a public repository under the Apache 2.0 license, and the development is overseen by the community, adhering to a collaborative development management model.

The webOS platform was originally developed by Palm in 2008. In 2013, the platform was bought out from Hewlett-Packard by LG and is now used on more than 70 million LG TVs and consumer devices. In 2018, the webOS Open Source Edition project was founded, through which LG tried to return to the open development model, attract other participants and expand the range of devices supported in webOS.

The webOS system environment is built using the OpenEmbedded toolkit and base packages, as well as a build system and metadata set from the Yocto project. The key components of webOS are the system and application manager (SAM, System and Application Manager), which is responsible for running applications and services, and the Luna Surface Manager

(LSM), which forms the user interface. The components are written using the Qt framework and the Chromium browser engine.

Rendering is done through a composite manager that uses the Wayland protocol. To develop custom applications, they propose to use web technologies (CSS, HTML5 and JavaScript) and the Enact framework based on React, but it is also possible to create programs in C and C++ with a Qt-based interface. The user interface and embedded graphical applications are mostly implemented as native programs written using QML technology. By default, the Home Launcher is offered, which is optimized for touch screen operation and offers the concept of changing maps (instead of windows).

<https://www.webosose.org/blog/2022/02/18/webos-ose-2-15-0-release/>

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THE

# VIRTUALBOX NETWORKING PRIMER

Connecting and Configuring  
Virtual Machines



Robin Catling

## The VirtualBox Networking Primer

Connecting and Configuring Virtual Machines

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

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

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

Author: **Robin Catling**

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Amazon UK link:

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

Kobo:

<https://www.kobo.com/us/en/ebook/the-virtualbox-networking-primer>



# COMMAND & CONQUER

Written by Erik

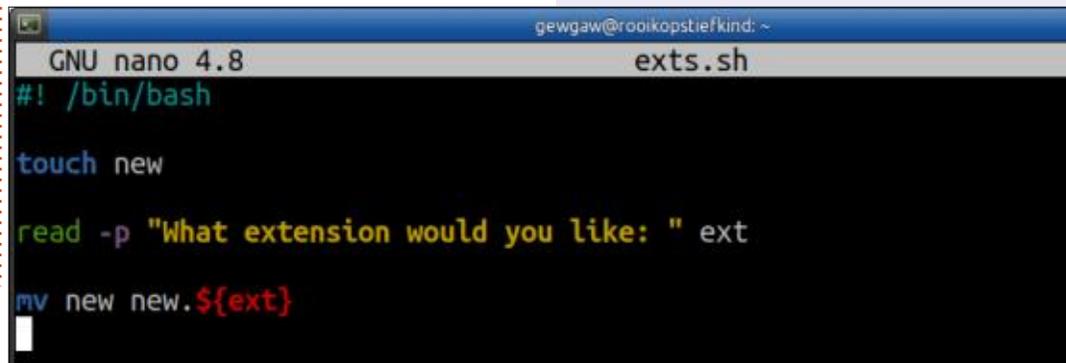
Last issue, we looked at a simple script where we asked a question and manipulated the answer. The issue before that, we looked at variables, so how about we build on what we know so far and add another Lego-block? We will not make big jumps here as I don't expect you to know anything about scripting, however, I do expect you to know simple things like operators, what type of bracket I am talking about, and how to look up a command in a man page (or bro pages, or yelp, or whatever).

How about we go script-ception? Scripts within scripts, that make scripts. Now the recipe for making scripts is; you create the file, edit the script and change the mode before running it. (Simplified). The main reason I write scripts is usually to automate something tedious. Imagine having to create say 44 users on a new server for scanners in the organization. Instead of having to create scanner1, then scanner2, and so on, wouldn't it be nice to do it all in one go? This is where you would use scripts in real life. Have you deployed a bunch of

containers and need to do something across a bunch of them? Script. So, what I am sharing with you is not useless. However, many times, people will try to tell you the terminal is dead, it really isn't.

Join me by whipping out your favourite terminal emulator and do what I do. I am a firm believer that when you do something, you remember it better than just reading. I promise to keep these short, so you don't get bored. Just one quick point before we have to come back, we looked at outputting text to the screen with echo, but we can also take input with "read". Let me illustrate;

nano exts.sh - to start a new file in the nano editor.



```
GNU nano 4.8 exts.sh
#!/bin/bash
touch new
read -p "What extension would you like: " ext
mv new new.${ext}
```

```
#!/bin/bash
touch new
read -p "What extension would you like: " ext
mv new new.${ext}
```

Now save that script and make it executable (you already know how to do this), then run your script. Please do not copy / paste as it will not work, type it in. Newer versions of nano support syntax highlighting, so make sure yours looks something like mine, or you will get errors.

On a side note, you can use the -s option for things like passwords, where the user's input will not be displayed, if you did not know about it.

When you run your script, it should exit cleanly and nothing will have changed in your terminal, but if you 'ls' or open your file browser, you should see a new file with the extension you typed in. In my case I made it '.txt', yes very original.

You may have noticed the colon and space before the closing inverted commas, that is because the read command does not care and takes your input from where you type it, but we work with humans and it needs to be legible. (In other words, window dressing.) You also should not put a question mark there either as this will be treated as an operator. Please do try this and see the outcome, so you know the error when you see it.

The 'mv' is simply the move command we are using to rename the file. The syntax is, mv <old filename> <new filename> - nothing difficult or funny.

So now we can get to the lazy part...erm inception-style script creation. \*cough

# COMMAND & CONQUER

So fire up a terminal emulator, and nano like before, and let's get cracking!

Get the code below saved, set your script to executable, and run it.

Here (bottom right) is a quick view from my PC so you can see the 'before' and 'after' for running the script. (I named the file tt.sh).

Now run your file as it is already executable. What happened? Well, go ahead and try, I am not saying.

You can do this over and over and every time you will have an executable script ready to go. You can embed almost any command /

commands in a script, or have the script create more than one script. Can you see where this is heading? I am sure someone out there has created a script to create more scripts to fill a drive as a prank.

```
#!/bin/bash

read -p "what should the name of our script be: " fname

touch ${fname}

echo " #! /bin/bash " >> ${fname}

echo " w " >> ${fname}

chmod +x ${fname}

echo "File created"
```

Now the first part we have discussed; touch simply creates an empty file with the name you gave it. When we use echo with the

double greater-than sign or chevron, it will append whatever is in brackets to the end of the file we create. Make sure it is not a single greater-than sign as that will overwrite your file contents.

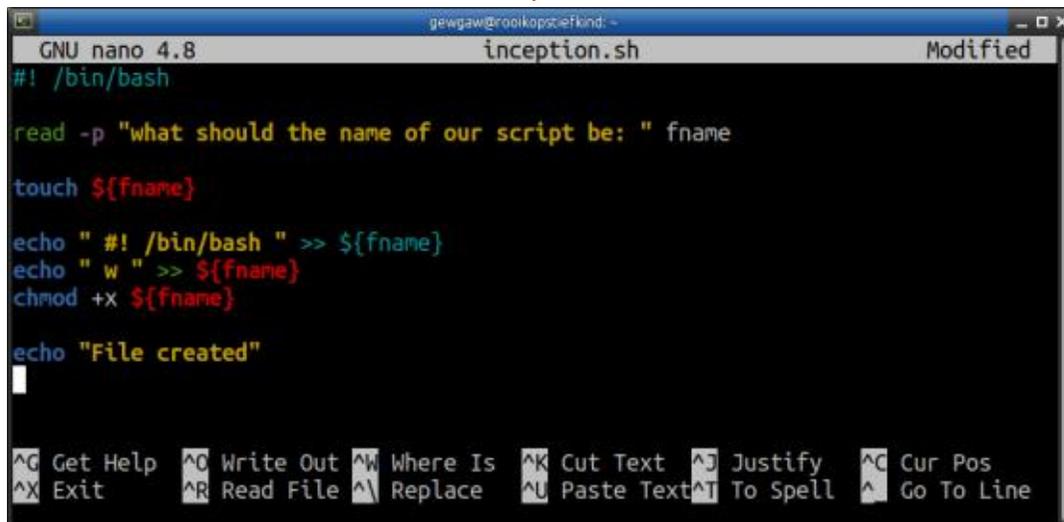
The chmod you know by now, and the last line was just added so you get some feedback when the process completes.

As you can see, nothing funny bash-wise, but it opens up a whole can of worms for those who want to try.

As always, if you have questions, email [misc@fullcirclemagazine.org](mailto:misc@fullcirclemagazine.org)



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



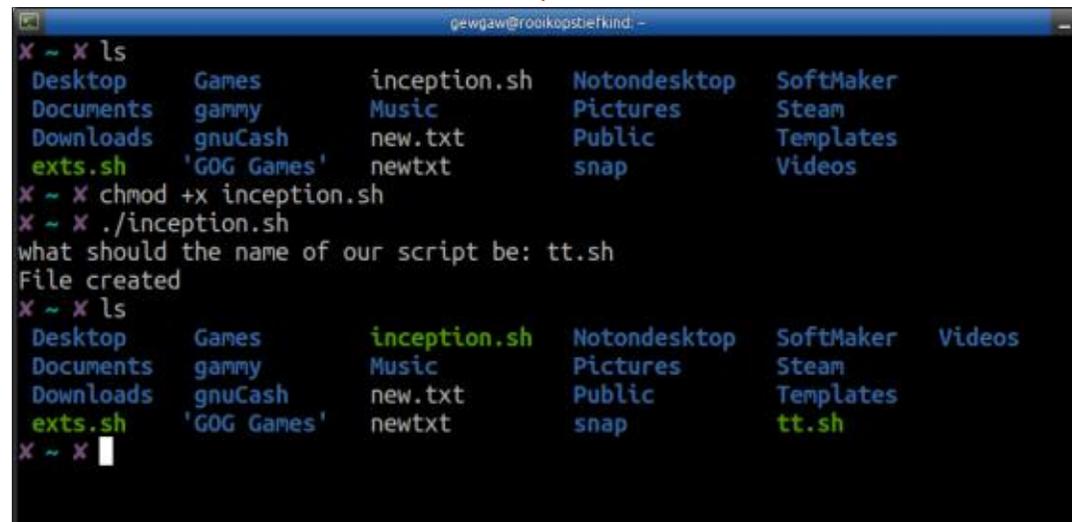
```
GNU nano 4.8 inception.sh Modified
#!/bin/bash

read -p "what should the name of our script be: " fname

touch ${fname}

echo " #! /bin/bash " >> ${fname}
echo " w " >> ${fname}
chmod +x ${fname}

echo "File created"
```



```
X ~ X ls
Desktop Games inception.sh Notondesktop SoftMaker
Documents gammy Music Pictures Steam
Downloads gnuCash new.txt Public Templates
exts.sh 'GOG Games' newtxt snap Videos
X ~ X chmod +x inception.sh
X ~ X ./inception.sh
what should the name of our script be: tt.sh
File created
X ~ X ls
Desktop Games inception.sh Notondesktop SoftMaker Videos
Documents gammy Music Pictures Steam
Downloads gnuCash new.txt Public Templates
exts.sh 'GOG Games' newtxt snap tt.sh
X ~ X
```



I had wanted to present you with an example of creating your own API wrapper library, but the site that I was going to use has moved to a paid model. However, I have found a different site that does basically the same thing at no cost to you, so I'll start.

The Movie Database ([themoviedb.org](http://themoviedb.org)) is a great place to find out information about your favorite movies and TV shows, as well as the people who star and help create them. The first thing to do is create an account on the main system and then you can sign up for an API key. Once you have a key, you can query the database through a simple Python program using the wrapper that I've created and am presenting here. The API wrapper library covers only a few of the various calls that can be made to the system, mainly the ones that were immediately useful to me and probably to you.

Once you have your key, you should look at the different API calls that can be made and what those calls will return to you. The

documentation is at <https://developers.themoviedb.org/3/getting-started/introduction>, and covers only the version 3 API calls. Most of us will find the Movie information very handy so we'll look at it first.

Any query for information on a movie or TV show starts with obtaining the ID number of the show you want to investigate. However, in order to obtain the ID, you must first do a search. We must format a URL which includes our API key and the name of the movie. Here is a dummy URL that you can use as an example.

```
https://api.themoviedb.org/3/
search/movie?
api_key=<<api key>>&language=en
-
US&query=(MovieName)&page=1&i
nclude_adult=false
```

To break it down, it would be...

- Base UR: <https://api.themoviedb.org/>
- API Version: 3/
- Command: search/
- Type: movie?

- API Key: <Your Key Here> &
- Language: en-US&
- Query: (Movie Name)&
- Page #: 1&
- Include Adult Films: false

There are also two other fields you can use to refine your search, year and primary\_release\_year.

Let's say we want to search for the Ant Man movie. Using the above format, the URL would look like this (without the API key):

```
https://api.themoviedb.org/3/
search/movie?api_key=<Your Key
Here >&language=en-
US&query=Ant%20Man&page=1&i
nclude_adult=false&region=US
```

The information that comes back will be in JSON format. (Ronnie had a problem with the JSON response, trying to get it to fit nicely in the magazine. So, to see the full response, check the readme at my repository <https://github.com/gregwa1953/FCM178>)

Inside the JSON response you will find a field named id as well as

fields for original title, overview and so on that will help you decide which of the results contain the ID that you are looking for.

```
id: 102899,
original_language: "en",
original_title: "Ant-Man",
overview: "Armed with the
astonishing ability to shrink
in scale but increase in
strength, master thief Scott
Lang must embrace his inner-
hero and help his mentor,
Doctor Hank Pym, protect the
secret behind his spectacular
Ant-Man suit from a new
generation of towering
threats. Against seemingly
insurmountable obstacles, Pym
and Lang must plan and pull
off a heist that will save
the world."
```

That gives a fair amount of data about the movie. If that isn't enough, you can go for the Movie Detail:

```
https://api.themoviedb.org/3/
movie/{102899}?
api_key=<<api key>>&language=en
-US
```

Again, the data comes back in JSON format. (Again, the actual JSON response is shown on my github repository.)

```
id: 102899,  
imdb_id: "tt0478970",  
original_language: "en",  
original_title: "Ant-Man",  
overview: "Armed with the  
astonishing ability to shrink  
in scale but increase in  
strength, master thief Scott  
Lang must embrace his inner-  
hero and help his mentor,  
Doctor Hank Pym, protect the  
secret behind his spectacular  
Ant-Man suit from a new  
generation of towering  
threats. Against seemingly  
insurmountable obstacles, Pym  
and Lang must plan and pull  
off a heist that will save  
the world.",
```

Television series queries would be similar, but in addition to looking for a specific TV series and its details, you can get season and episode details as well. Going even further, for movies you can get the names of the cast and crew, and the same thing for TV shows plus guest stars for each episode (if available).

While you can simply use your API key and run the queries (all of them) via a web browser, I think that it's a bit simpler to use Python to make the calls. Hence the API wrapper.

So the wrapper is named (imagine how many hours it took me to come up with this name...)

wrapper.py. As always, it starts out with a series of imports:

```
# =====  
# Imports  
# =====  
import requests  
import json  
import pprint  
import locale
```

I included pprint to allow me to look at the data in a nice format when I was doing development and for troubleshooting purposes. The locale library helps to make sure that the language field is formatted correctly for the API query for where you are.

Just after the import section, I have the following variable definitions which force them to global variables. In order to use the wrapper library, be sure to assign your API key to the mykey3 variable:

```
mykey3 = <Your API Key Here>
```

```
loc = locale.getlocale()[0]
```

The first major function will search the movie database by name, and return the requests' status code, the number of results, the number of pages, and a list of dictionaries that has been snipped

```
def search_movie(  
    key,  
    query,  
    page=1,  
    language="en-US",  
    include_adult=False  
):
```

And the call to search for the movie "The Mitchells vs. the Machines" would look like this...

```
status, tresults, tpages, endresults = search_movie(  
    mykey3,  
    "The Mitchells vs. the machines",  
    page=1,  
    language=loc,  
    include_adult=False,  
)
```

out of the JSON data stream.

At this point, you are probably wondering what is the deal with pages? This is very important, since if there are more than about 20 matches found, the API will break the result set into a set of pages. You will need to make multiple requests using the Search Movie query – asking for each page in order. To keep you (and myself) from having to do this, I handle all the requests for the search within the function, and merge all of the data and only a single list of dictionaries.

So the function to search for a movie using the wrapper would be

as shown top right.

I have to say, if you have a chance to stream this movie, please do! You won't be disappointed.

All of the data that is provided in the JSON file is included, it's just formatted in an easier format for you to deal with, in the endresults variable (again it's a list of dictionary objects).

Using pretty print, the returns from the function would look like that shown next page, top right.

So the information we REALLY want would be the id, so we can simply extract this by using...

```
movie_id = endresults[0]
["id"]
```

Then the call to get the movie details would be:

```
status_code, jdata =
wrapper.get_movie_by_id(mykey
3, movie_id, loc)
```

And the returned information is shown bottom right.

The current version supports the following functions from the API version 3.

## Currently supported functions:

```
*** Search functions will
return a number of results
depending on query ***
    Search_movie,
search_tvshow, search_multi
```

```
*** Get detail functions
(REQUIRE ID FROM SEARCH
FUNCTIONS) ***
```

```
Get_movie_by_id,
get_movie_credits,
get_person, get_tvshow_by_id.
```

```
Get_tv_season_detail,
get_tv_episode_detail,
get_tv_show_season_credits,
```

```
Get_movie_watch_providers,
get_tv_on_air (VERY
EXPERIMENTAL)
```

```
Search Movie response: 200 - Total Results: 1
[{'adult': False,
  'backdrop_path': '/6ydGnzbo8s4yRNqOWPAvVSiNU8N.jpg',
  'genre_ids': [16, 12, 35, 10751, 878, 28],
  'id': 501929,
  'original_language': 'en',
  'original_title': 'The Mitchells vs. the Machines',
  'overview': "A quirky, dysfunctional family's road trip is upended when they "
              'find themselves in the middle of the robot apocalypse and '
              '"suddenly become humanity's unlikeliest last hope.",
  ...
  'vote_count': 1635}]
```

I've decided to go ahead and release this early version (0.4) that you can use as a learning tool.

At the end of the file is a simple test program that you can use by simply calling:

```
python wrapper.py
```

If you want to use this in your own programs, just copy it into your project folder and import it into your source code.

```
StatusCode: 200
{'adult': False,
  'backdrop_path': '/6ydGnzbo8s4yRNqOWPAvVSiNU8N.jpg',
  'belongs_to_collection': None,
  'budget': 0,
  'genres': [{'id': 16, 'name': 'Animation'}],
  ...,
  'homepage': 'https://www.netflix.com/title/81399614',
  'id': 501929,
  'imdb_id': 'tt7979580',
  'original_language': 'en',
  'original_title': 'The Mitchells vs. the Machines',
  'overview': "A quirky, dysfunctional family's road trip is upended when they "
              'find themselves in the middle of the robot apocalypse and '
              '"suddenly become humanity's unlikeliest last hope.",
  ...
  'vote_count': 1637}
```

As you can see, creating a wrapper for many APIs can be fairly simple. That's not to say that every API would be this easy, but this should give a good starting point for you to create your own API library wrappers for fun and potentially profit.

I've placed the wrapper.py file on my repository at <https://github.com/gregwa1953/FCM178>

Until next time, as always; stay safe, healthy, positive and creative!



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



# HOW-TO

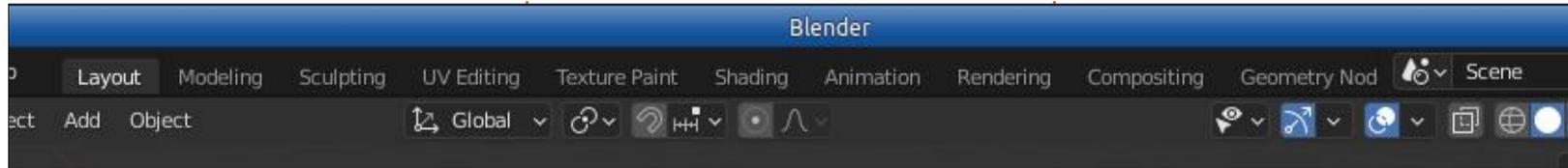
Written by Erik

# Blender Pt.3

Since I misplaced parts 2 and 3, I was recreating them, when blender made the jump to 3.0. So if anything does not look 100% the same, just go with the flow. The first few are going to try and draw your attention to different parts of the interface so you can orient yourself. By no means is this series a deep dive, I do not work with blender every day, I got it to make isometric landscapes and threw up my hands in frustration more than once, so I know how it feels. Picking up a book, I found that they used words for things I had no idea of. On top of that, English is not my first language and I know there are many more people like me. Here, I attempt to get you up to speed, the fastest way I know how. Later on we will make a penguin and maybe a low poly landscape. Thanks to **@JavierSam** for his input – you can find him at:

[javiersam@blogspot.com](mailto:javiersam@blogspot.com)

When you fire up blender now, you have the choice of keeping the old settings or loading the new settings for blender 3.0. The choice is yours. I suggest going for the



newer settings as things only move forward.

Now that we have demystified some of the interface, and we are able to do some of the basics like zoom, pan, rotate and so forth, it is time to talk about what you see and why it sometimes looks different in tutorials than you are seeing now. So far, we have only explored the default view.

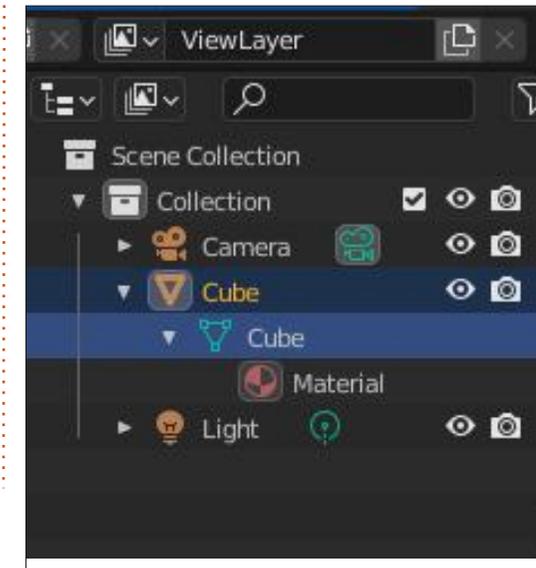
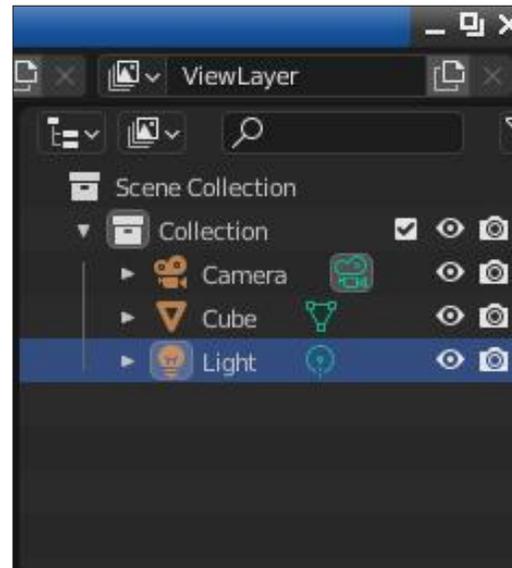
Let us quickly talk about some more interface before we start making something – last one, promise! When I say predefined workspaces, I want you to look at the image up top.

Starting with Layout, modelling and sculpting. Please go ahead and click through each of these so that you know what they look like. By the way, if I did not mention it, I will be using only a three-button mouse as that is what most people have. We will go into more detail, once

we have actually made something. I want you to accomplish something first before we dive in deeper, so hold those questions on things I may not have mentioned. On our right, we have the scene collector at the top and the editors below it. What you currently see is not the only view, they can change, so if you have ever seen an online tutorial and it looked different, just go with the flow for now, we will reveal more as the series develops.

The scene collector's default view will give you the following (shown below).

A camera, a cube and a light. Clicking on the little eye next to the cube, will turn it visible or invisible. It does not remove it. Now expand the cube. Click on any of the two properties below it and look at how the panel below the scene collector changes. I want you to understand that it is dynamic and will change from the default view. There is a



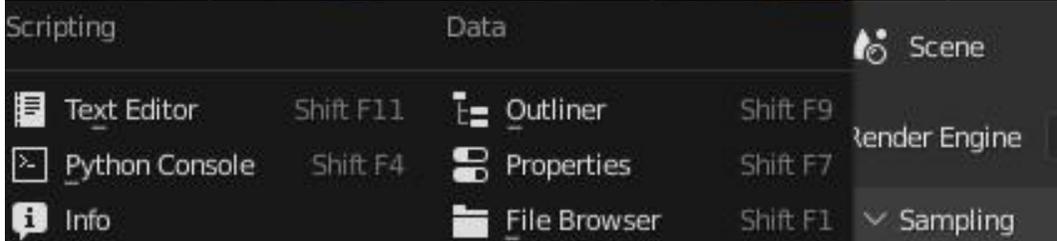
# HOWTO - BLENDER

little tree view icon that acts as a drop-down expansion here for you to see grouped icons, just above the words "scene collection"



To understand the properties panel below it, you need to realise that it is grouped into sections by thin black lines, that you may or may not be able to see (it is black on dark grey after all).

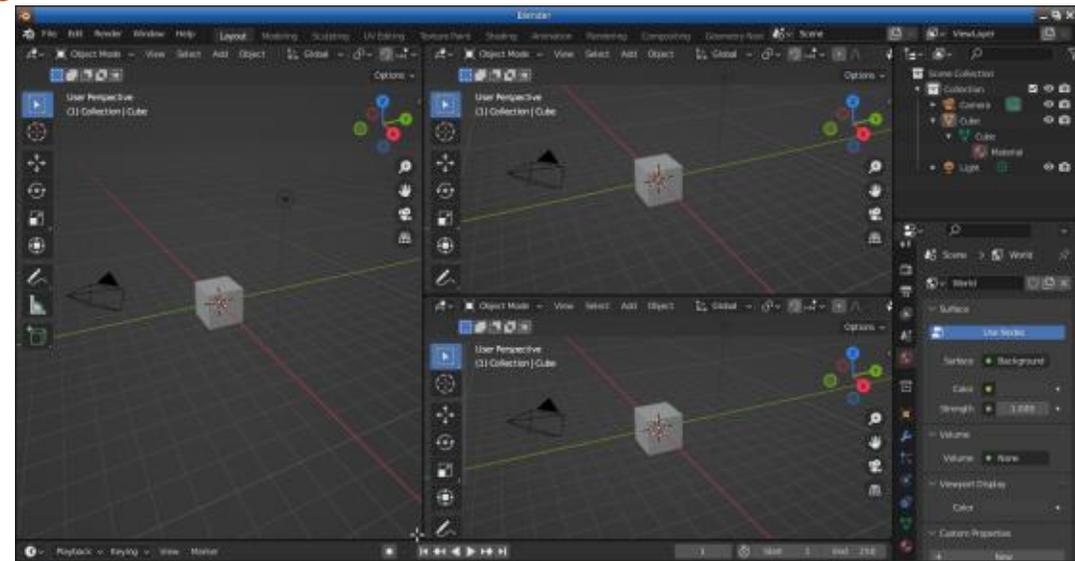
I want you to hover over each one and read the tool tips. The first one, the "screwdriver and spanner", is separate, denoted by the large space between it and the next icon, then we have a group of light-grey / off-white icons, followed by a red one, a white one, an orange one, and blue ones. This is a visual representation of the category that the icon falls into. Please go ahead and click through each one to see what they do until you reach the chequer board at the end (you should also expand the entries



inside each one). Now say your screen is 1366x768 or some such, you may not be able to see all of the icons in the list. Fear not, just above the "screwdriver and spanner", there is an icon that expands into a drop-down list, ringing up a nice grouped view. The view contains all the shortcut keys for you to learn. In no way do you have to use the shortcut keys, however, it makes the work flow a lot faster.

You will find another of these organised drop-down icons in the top-left (looks like a grid with a sphere on it), and one in the bottom left (a clock face). Now that you know where to find what, let's look at doing things quickly. Move your mouse to the bottom corner of the viewport and drag vertically or horizontally.

The pointer icon should change into a cross, or else it will not work (don't know if you can see mine – the magazine may be on a small screen). This is handy when you



want to look at an object from different perspectives. You can change the perspective of each window you created in your viewport. Just go to each one and press any of the numpad keys we talked about in a previous issue (I may not have mentioned it, but if you do not have a numpad, you can emulate it by going to: Edit -> Preferences -> Input). It is as easy as that, provided you have the screen real-estate. To join or merge windows back into each other, rinse and repeat. Move your pointer to the corner, where it makes another cross and drag into the adjoining window, and voilà!

**Tip:** if, for some reason, you mess up your interface into the FUBAR

state, you can reset it to factory defaults from the file menu. File > Defaults > Load factory settings.

That concludes the whirlwind tour of our interface. Next issue we start making things!!

Questions or comments?  
[misc@fullcirclemagazine.org](mailto:misc@fullcirclemagazine.org)



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



# HOW-TO

Written by Ard Rijnhout

Playing with Virtual Box for the last few years, I had some problems after upgrading to Ubuntu 21.04 (I think it was). Thus I decided to look around for alternatives and found some interesting Virtual Machines: Gnome Boxes, Virtual Machine Manager(VMM), and recently Quickemu with its graphical counterpart Quickgui, especially for Linux host systems.

Now I want to highlight my experiences with Quickemu/ Quickgui package; on request I might consider some writeup for Boxes and VMM.

The package is made by Martin Wimpress (dev. Of the Mate DE), who made this for quickly running checks on his Mate upgrades, and decided to make it public. Read more here: <https://github.com/quickemu-project/quickemu>.

Yannick Mauray and Mark Johnson joined in to make the graphical interface, in Quickgui, which is built on top of Quickemu.

Both packages are free to get and use.

Quickemu is a command controlled app that is based on the QEMU virtual machine and is meant to automatically “do the right thing”, rather than expose exhaustive configuration options.

## INSTALLATION – QUICKEMU FOR UBUNTU

You can install Quickemu from a ppa with these commands:

```
sudo apt-add-repository  
ppa:flexiondotorg/quickemu
```

```
sudo apt update
```

```
sudo apt install quickemu
```

## INSTALLATION – QUICKGUI FOR UBUNTU

And the Quickgui can be installed from another ppa:

```
sudo add-apt-repository  
ppa:yannick-mauray/quickgui
```

```
sudo apt update
```

# Quickemu & Quickgui

To run your desired package (above again the example for Ubuntu-Mate Impish), just use the above command and your OS of choice will start allowing you to use a live version or install it.

Windows will bring you to the install screen.

MacOS has some special instructions, see Github.

## RUNNING GUI

The Graphical Interface works very easily after having installed both the Quickemu and Quickgui packages.

Open the Quickgui App and it will open with a screen to allow you to select your already installed package, or to download a new operating system.

```
sudo apt install quickgui
```

For other host systems, please refer to the Github site mentioned above.

## RUNNING COMMAND-LINE

After installation, there are only two commands to use for downloading and running the App. :

```
quickget ubuntu-mate impish
```

This command will download and configure the package you want. Above is the example for Ubuntu-Mate Impish. But there is a very wide selection of Linux distros and Windows 10 and 11 versions, as well as a selection of MacOS packages, to choose from.

It will make a folder in your Home dir, for the package and a conf file, unless you select another dir, you can even put it on an USB stick or external HDD.

```
quickemu --vm ubuntu-mate-  
impish.conf
```



Clicking the "Create new machines", will give you a wide selection of Linux distros, Windows and MacOS versions to choose from.



You Select your Operating System, next choose the Version, and by a click on Download, the package will be downloaded into the Working directory, as shown.



A conf file is made as well for running the O.S. and specifying the optimised RAM for the VM based on the RAM of your computer, the cores, and the disk-size in GB for your VM (normally ram, cpu\_cores are below 50% of your PC). You can manually change this in the conf file if you like.

config file: example for my PC, the cpu, ram and disk\_size you may adjust as you prefer:

```
guest_os="linux"
```

```
disk_img="ubuntu-devel/  
disk.qcow2"
```

```
iso="ubuntu-devel/ubuntu-  
devel.iso"
```

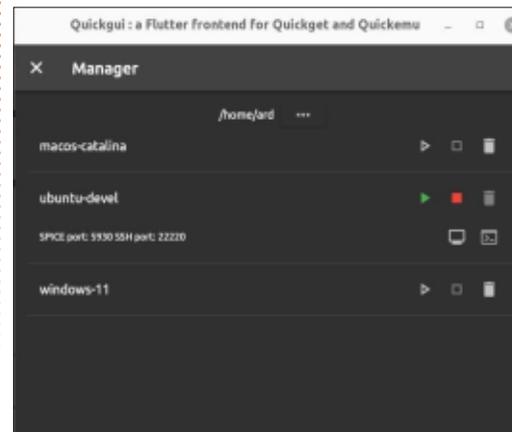
```
cpu_cores="3"
```

```
ram="8G"
```

```
disk_size="64G"
```

Once the download finishes, click the Dismiss button, and you will come back to the main Menu screen.

Opening the 'Manage existing Machines' will show all the O.S.'s that you have downloaded and installed.



Select the one you want to open and a green arrow is inviting you to start your vm. With the red square, you can stop the vm and the trash icon is available if you want to get rid of the vm altogether.

Communication with the host is possible by activating the SPICE port or the SSH button.

## SUMMARY

I like this package because of its simplicity to use and being able to quickly and easily run the Operating System you want. It does not offer all the features that Virtual Box has, though.

This App allowed me even to see and work for the 1st time with a macOS system; so far I still choose to stay with Ubuntu.



**Ard** started using Ubuntu around 2008, and used Windows only as 2nd choice in a dual-boot system. The last 8 yrs have been spent with VMs in order to explore new distros and to help with studying development versions of different OSes and Apps.



# HOW-TO

Written by Mark Crutch

# Inkscape - Part 118

This month, I'll be continuing to look at the new Live Path Effects (LPEs) that were added in Inkscape 1.0.x and 1.1.x.

## ELLIPSE FROM POINTS

If you're a frequent user of LPEs, you may already be familiar with the "Ellipse by 5 points" effect (covered in part 69 of this series). As the name suggests, this draws an ellipse that passes through the first five nodes of a path. This new LPE does the same thing, and much, much more. In fact, the name really doesn't do justice to the

**Ellipse from points**

Method: Auto ellipse ▾

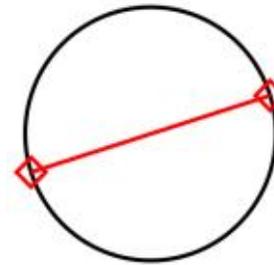
- Arc
- Other arc side
- Slice arc
- Frame (isometric rectangle)
- Axes
- Perspective square
- Perspective axes

Axes rotation 0.00 - +

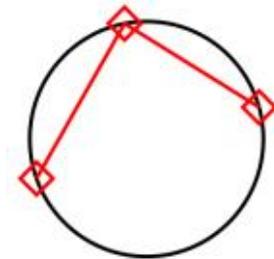
Source path

capabilities it offers, as it not only allows for the creation of ellipses, but also circles, arcs, and segments. Whereas the old LPE provides no parameters to control its output, this new one comes with quite a few, not all of which are enabled at the same time.

Despite all these extra controls, however, the basic functionality is still pretty intuitive, and benefits hugely from applying any changes to the parameters or path shape interactively, making it fun to play around with all the different options. Your starting point will always be a path to which the LPE is applied, although this effect cares about only the positions of the nodes, not the shape of the path segments. For demonstration purposes, however, all my examples will use straight line segments, and I'll show the original path as a red line with diamonds marking the nodes (courtesy of the "Clone original" and "Show handles" LPEs). The black lines are the output from the LPE. Let's start with the simplest case: a two-node line using the "Auto ellipse" method.



In this case, the effect draws a circle using the two nodes in the path as points at either end of the circle's diameter. Drag one of the nodes around, and the circle will scale and rotate accordingly. Let's see what happens if our source path has three nodes, rather than two.



Again we have a circle, but this time it circumscribes the triangle created by the three nodes. Once more, dragging the nodes around the page will give you a good idea of how the size and position of the

circle relates to the node positions.

With three nodes, some of the LPE parameters start to become useful to us. When enabled, the "Arc" checkbox draws an arc connecting the three nodes, rather than closing the whole circle. Enabling the "Other arc side" checkbox instead draws the "other" arc which forms the remainder of the original circle. "Slice arc" can be used with either type of arc to render it as a segment (i.e. a pie-chart "slice") rather than an arc, by adding straight path segments that join the end nodes to the center of the circle.

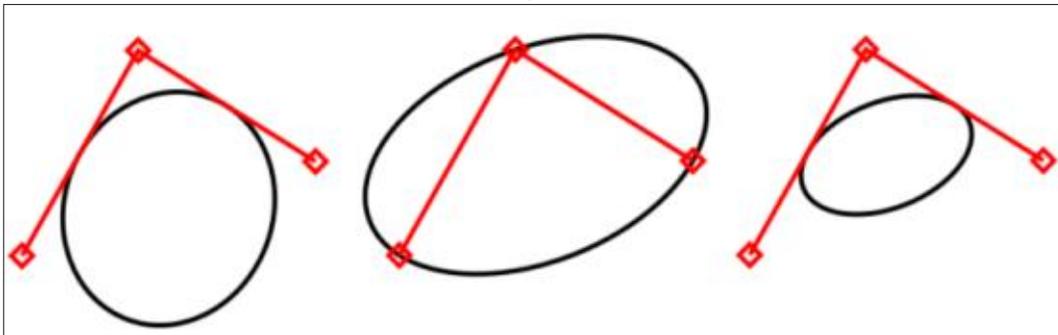
With three nodes, more of the options in the "Method" pop-up menu will also work. The first two ("Auto ellipse" and "Force circle") just produce the result we've already seen. "Isometric circle" treats the path as having straight line segments, even if it hasn't, and uses the first two segments to define the edges of an isometric rectangle into which it fits an ellipse that appears as if a circle is rendered in that isometric

## HOWTO - INKSCAPE

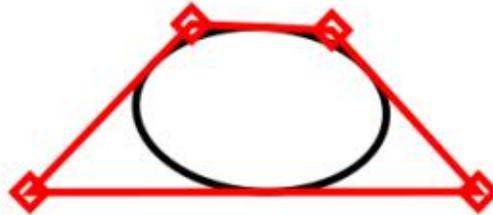
projection. That sounds complex, but if you do much work with isometric or oblique projections, you'll know exactly what this is for: in short, draw your path with suitable angles (e.g.  $120^\circ$  for isometric,  $135^\circ$  for oblique), and it will render "circles" that are appropriately distorted for the projection.

The last two options in the pop-up are thankfully easier to describe: "Steiner ellipse" draws an ellipse that circumscribes the triangle created by the three nodes, while "Steiner inellipse" draws one that inscribes it. The image below shows the "Isometric circle" output, followed by the two ellipses, for the same path that I used earlier.

Adding a fourth node to our path is required for the remaining entry in the pop-up: "Perspective circle". This treats your four nodes as defining a square in a



perspective view, and renders a "circle" that fits within that square. This is perhaps most clearly demonstrated using a closed path arranged to give a classic perspective view.



With the red lines removed, we can now also see what the remaining checkboxes do. The "Frame (isometric rectangle)" option will draw a bounding box around your circle or ellipse. By default this will be a rectangle, defined by the size of the major and minor axes of the ellipse, but you can use the "Axes rotation" spinbox to rotate the box around the ellipse, resulting in it becoming a

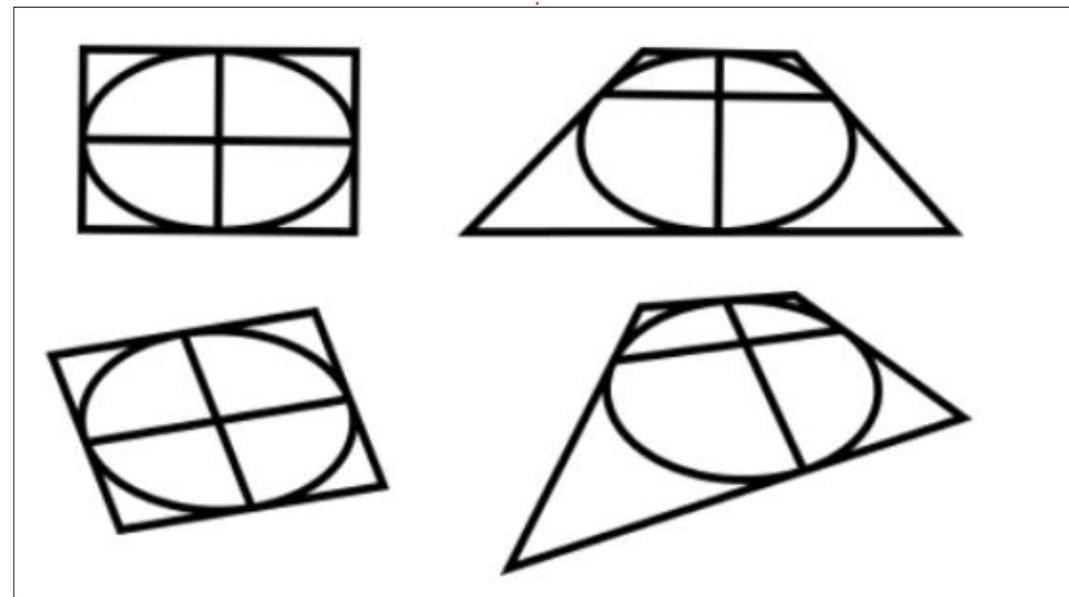
parallelogram if the ellipse's axes aren't perfectly aligned with the global x and y axes. The "Axes" checkbox simply adds two lines, joining the mid-points of opposite sides of that bounding box in order to divide it into four equal areas.

When the "Perspective circle" method is used, however, two alternative options become available. The "Perspective square" checkbox draws lines marking the "square" in perspective space that the "circle" is inscribing: essentially this draws a shape connecting all of the four nodes, even if the original path wasn't a closed shape. The "Perspective axes" renders a pair of axes as they would appear in perspective, leading to a rather

different outcome compared with the plain "Axes" option, especially if you rotate them using the spinbox.

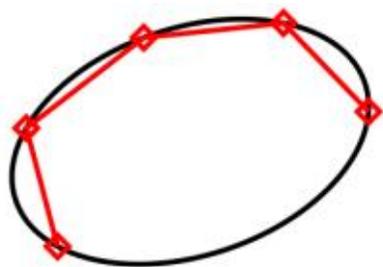
The image below compares the two types of bounding box and axes when used on the same perspective circle. The left shows the result of the "Frame" and "Axes" checkboxes, while the images on the right show the corresponding "Perspective" versions. In both cases, the top image shows a rotation of  $0^\circ$  whereas the bottom image shows the result of increasing that value to  $15^\circ$ .

To complete our tour of the checkboxes, the "Source path" option does what you might



expect: it renders a copy of the original source path as part of the output. Due to the nature of LPEs, the source path is drawn in the same style as the ellipse (and axes and bounding box, if used), so if you want it to appear differently – as I did in my examples – you’ll need to use a “Clone original” or “Fill between many” LPE on a sacrificial path in order to render it as a different object for styling purposes. For general use, however, enabling this option can make it a lot easier to see what’s going on with your ellipse as you interactively tweak it, even if you then turn it off again once things are positioned correctly.

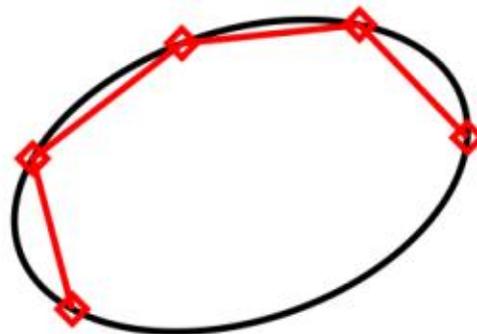
Lastly, if we add a fifth node to our path (with Method set to “Auto ellipse”) we end up with the same result as the old LPE: an ellipse that circumscribes the five nodes. If you want full control over your ellipse, this is probably a better option than either of the Steiner methods.



There’s one final thing to mention regarding this LPE: the developers should be commended for putting the effort in to produce really useful tooltips. For example, if you can’t remember how many nodes your path needs for each different method, just hover your mouse over the pop-up for a useful reminder.

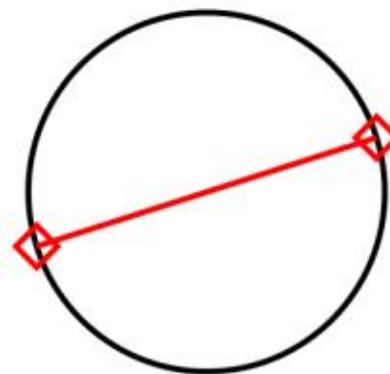
## OFFSET

The Offset LPE is pretty straightforward, and does what its name suggests. You may be familiar with the Path > Dynamic Offset feature which puts a handle on your path that you can drag to adjust the amount of offset, letting you create



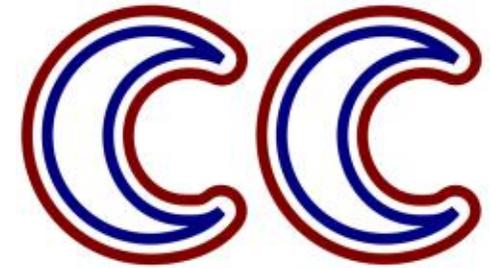
a shape that insets or outsets the original path. In doing so, it modifies the original, unlike the Path > Linked Offset feature that creates a second path which

maintains a live linkage to the original. The LPE falls somewhere between these two: there is a live link to the original path shape, but that path is not included in the final output, so, despite this link, the result still leaves you with only one path rather than two. In practice, therefore, this LPE is closer to the Dynamic Offset feature, only with more options.

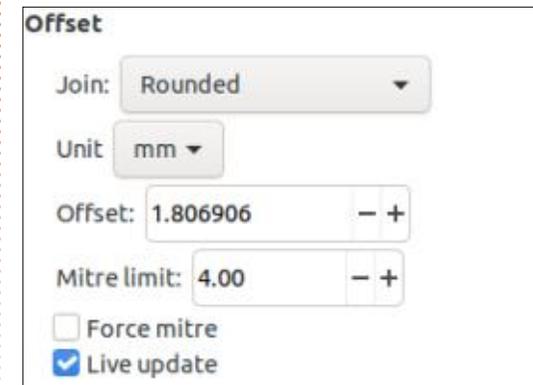


Let’s look at an example. Here I’ve created a crescent shape by performing a Boolean difference operation between two circles. I’ve also adjusted the nodes of the bottom point very slightly in order to demonstrate some aspects of the LPE later on. In both these cases I’ve made a copy of the original shape in blue, but applied an offset to generate the red version. The left-hand image shows the result of the Path > Dynamic Offset feature, while the right-hand

version shows the LPE equivalent. As you can see, they look identical.



If that was all there was to this LPE, it might still be useful as part of an effect chain, but not so much as an effect in its own right. But once we consider the various settings that it offers, it quickly becomes clear that the LPE offset is a far more powerful beast than what went before it. Let’s look at the available parameters.



Dealing with these out of order, the “Unit” pop-up should be pretty self-explanatory, setting the type

## HOWTO - INKSCAPE

of units used for the “Offset” parameter which, in turn, is used to set the amount of offset that is applied to the path. It can be a positive value for an outset, or a negative value for an inset – but, in practice, it’s usually more effective to switch to the Node tool (F2) and drag the small, red, circular handle on the canvas, to adjust the offset by eye. The “Force update” checkbox determines whether or not the path updates live as you drag the handle, or updates only when you release the mouse button. Usually you should leave

this enabled, unless you have a slow machine or a complex path which makes the updates jerk and stutter.

The “Join” pop-up has the most effect on the shape of the path. In the previous image it was deliberately set to “Rounded” to reproduce the effect of the Dynamic Offset feature, but here’s a demonstration of how each entry appears with this particular shape.

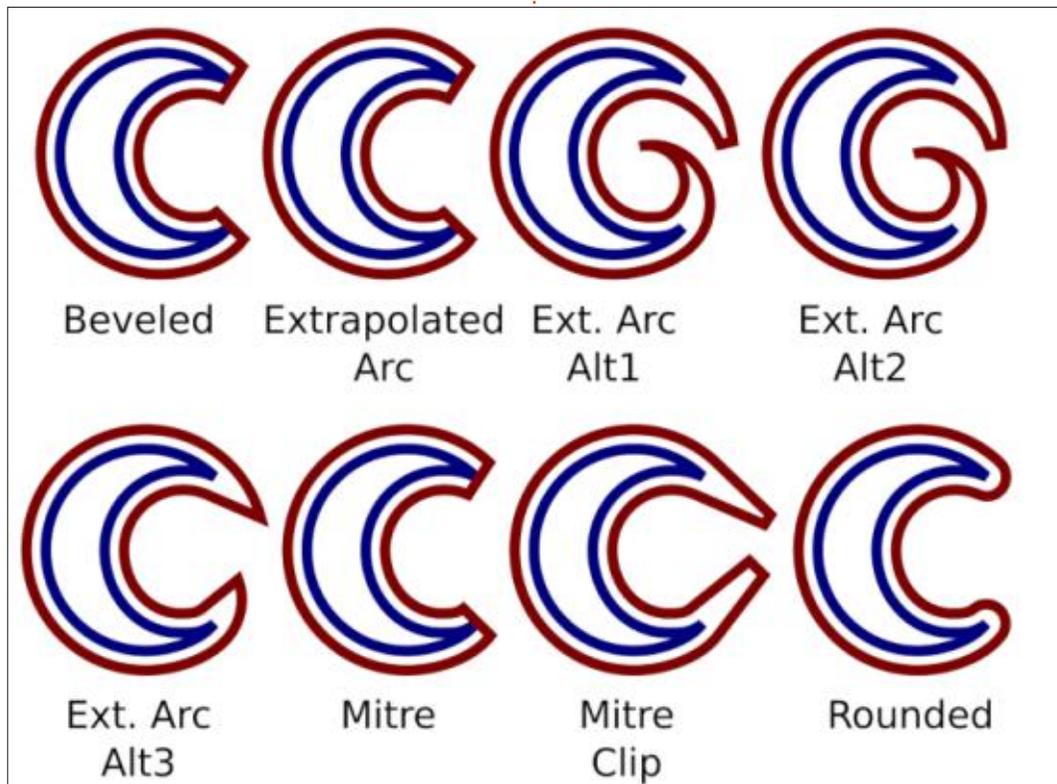
It’s worth noting that the result you’ll see is extremely dependent on the shape of your source path. In

particular, look at the difference between the two pointed corners in the extrapolated joins, after making only minor tweaks to the nodes of the bottom point. As this shows, tight corners are a particular issue and increasing the “Mitre limit” value will allow some corners to appear that would otherwise be cut off. In the previous examples, increasing this value to 10, for example, allows most of the shapes to extend to give far more pointed ends. The main exceptions to this rule are the Beveled and Rounded types, which don’t take the mitre limit into account. The best option is usually to try each join type, and adjust the mitre limit and/or the individual nodes to get the result you want.

The Extrapolated Arc join types are particularly interesting. These try to follow the curves of your path to form a more natural join, rather than just projecting straight lines as a mitre does. When working with curved paths, these are well worth trying. If, however, you really want to project the pointiest of mitred corners regardless of the mitre limit, choose any join type other than Beveled or Rounded, and check the “Force mitre” option.

Finally, it’s worth noting that this LPE also works with open paths, whereas the Dynamic Offset feature automatically closes them when you try to use it.

These two LPEs both offer features that are head-and-shoulders above the options that Inkscape provided previously, and the developers should be applauded for continuing to push the boundaries of what path effects are capable of.



**Mark** uses Inkscape to create comics for the web ([www.peppertop.com/](http://www.peppertop.com/)) as well as for print. You can follow him on Twitter for more comic and Inkscape content: [@PeppertopComics](https://twitter.com/PeppertopComics)

# THE DAILY WADDLE

COVID-19 IS LIKE MY  
EX, ARRIVES OUT OF  
NOWHERE AND RUINS  
EVERYONE'S LIFE.





Hello again, loyal readers! I'm sorry to have missed a couple of months, but a major system crash and a bout of pneumonia will sometimes do that to you.

This month, we're going to take a look back at Chrubuntu, including a look at the KDE interface from back in the day. It has been said that any sufficiently advanced science will appear to be magic, and Chrubuntu almost qualifies. As much as computers can make our lives easier in ways sublime and mundane, profound and superficial, there are certain things that still seem almost miraculous to the unjaded eye.

For the record, probably one of the most spectacular things I ever saw a computer do was while I was in training to support Visio at Microsoft, back in the early 2000's. The version of Visio then current could actually map an entire ethernet network, including pictograms appropriate to the hardware on the network, with a simple Visio command from an attached workstation. Work that

would have taken days or weeks to do manually was done accurately and almost effortlessly, in a matter of literally minutes. It absolutely blew me away.

But, as is often the case, Linux also had its point of pride back in the day, with Chrubuntu Linux. With Chrubuntu, one would buy an inexpensive Chromebook (I went with the Acer 720p), shift it into Developer Mode while connected to the internet, open a terminal, type in a rather lengthy command, hit Enter, then come back in about 30-45 minutes to a fully functional,

stunningly complete Linux laptop with a great assortment of preloaded software like OpenOffice, all ready to go. Absolutely mind-blowing!

## CHRUBUNTU, KUBUNTU

As most readers are well aware, there are many variants to Ubuntu and an array of desktop environments that can be run. Back in the day, I wanted to run KDE, because its interface was similar to Windows, which I was familiar with and comfortable with. I didn't care for Unity's minimalist approach to

the desktop (it still boggles my mind that both Unity and GNOME fail to provide the ability to create desktop shortcuts out of box). Once you installed a standard Ubuntu distribution using Unity, you were greeted with a desktop with just a couple of shortcuts, without even a Start Menu or something similar. I didn't know the Dash very well at the time (and I still think it's a weak user interface). Consequently, I installed the Kubuntu version of Chrubuntu by adding a switch to the Chrubuntu installation command. Below is what the Chrubuntu/Kubuntu desktop looked like after extensive tweaking.

## KUBUNTU – GESUNDHEIT!

Now, some readers probably look at a desktop like this as overly busy, preferring a 'cleaner' interface. But, in practical terms, this desktop has almost everything I used on even a semi-regular basis right at hand. Move the mouse once, double-click, and you've got Calligra Words, open and ready for input. Not sure what applications



# EVERYDAY UBUNTU

are installed? Click the K symbol at the bottom left and you'll see a multi-level menu fly out showing you most, if not all, of your installed programs, already organized into sub-menus. I find this MUCH more efficient and intuitive than the Dash on stock Ubuntu distributions. To launch Calligra Words on the Dash, it's move mouse and click at top of command strip (on KDE with a desktop shortcut, we're now already in), then start typing 'CAL', which is probably sufficient to bring up all our Calligra Suite apps, move mouse again, now click Calligra Writer, and NOW it's finally launched. 'Clean desktop' or not, that's maddeningly inefficient.

Here's the KDE desktop with the K menu invoked:



There are also a lot of handy widgets available, some of which I have installed here, although I could never get the Daily Comics widget to work properly. This meant that I did not get Calvin and Hobbes delivered automatically to my desktop every day, a significant justification to even own a computer, I'm sure you'll agree.

## A VERY CAPABLE DISTRIBUTION AND INTERFACE

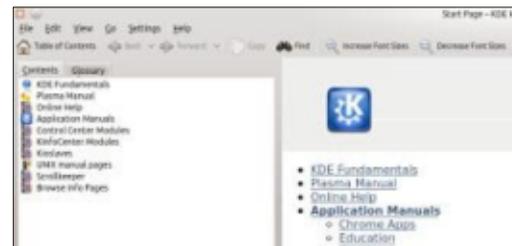
Even though this Kubuntu distribution is, relatively speaking, ANCIENT, it was still a VERY capable desktop environment and is still pretty legit today. I installed this Chrubuntu/Kubuntu machine back in 2010, IIRC, and it still stacks up pretty well today. It had Chromium and Firefox for internet access, Thunderbird for email, and even Cheese to do online video meetings.

The Office suites I had installed were Open Office, the more mature and reliable of the two most popular suites, and Calligra Office, which was packed with features and

a number of applications that Open Office carried no analogue to when compared to Microsoft Office, such as Kontact to replace Outlook and Kivio to replace Visio. Being a big Visio user since the early 1990's, that was a big deal for me. I don't recall if both were installed by default, but I know at least Open Office was, meaning your initial Chrubuntu desktop on first look was already very useful. Here's the Calligra Words interface. Happily, all the Calligra applications shared a lot of similarities across their interfaces, making them easier to learn.

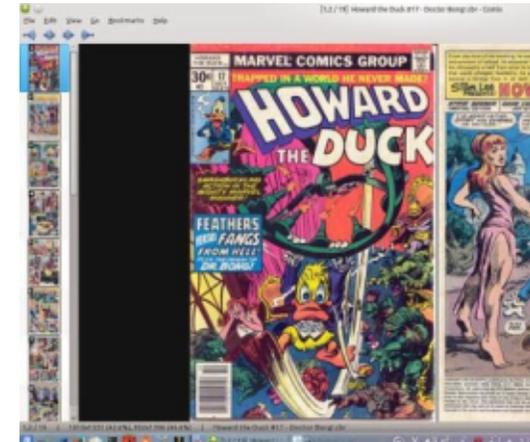
## HELP! I NEED SOMEBODY....

I always felt like KDE was much more helpful to the novice user than Unity or GNOME. There's a really nice help application for KDE that is suitable for both lookups and browsing through as a tutorial (and of course, for the purist, there's always MAN pages):



## COMICS IN COMIX

The Comix application allows me access to the thousands of comics I have scanned so I don't have to get into storage to dig out the originals. I'm not a geek, YOU'RE a geek! Here's the cover and splash page from the hilarious and incisive satire comic 'Howard the Duck', drawn by the inimitable and much-missed Gene Colan:



## DRAWING IN CHRUBUNTU

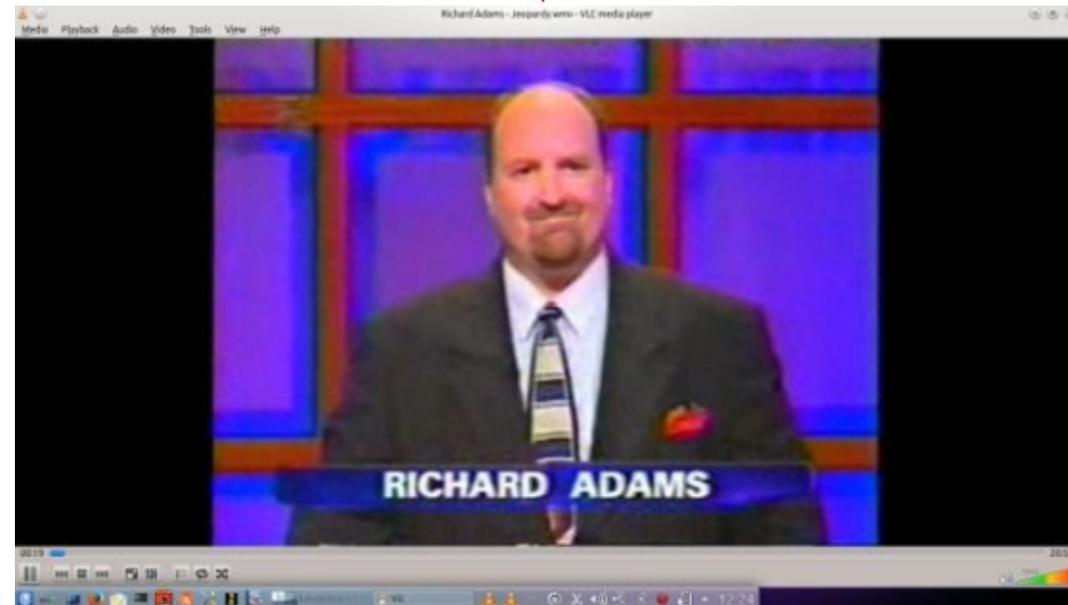
Longtime Full Circle readers have no doubt seen the exhaustive series that's been running for years in these pages for Inkscape. There are also drawing programs in both major Office suites (multiple ones for Calligra), along with the classic,

# EVERYDAY UBUNTU

the GIMP. All these are available even in this almost cuneiform-aged Chrubuntu distribution.

## WATCHING VIDEOS

If I could go back in time, one task I would be sure to perform would be to load up a modern vintage laptop (maybe even something like this Chrubuntu Chromebook) with movies to watch and drop it into the lap of teenaged me back in the 1970's. Just what you could get on this machine's fairly modest 320 GB rotational drive would have BLOWN MY MIND back in the day, and it's still worth appreciating the magic that routinely exists at our fingertips



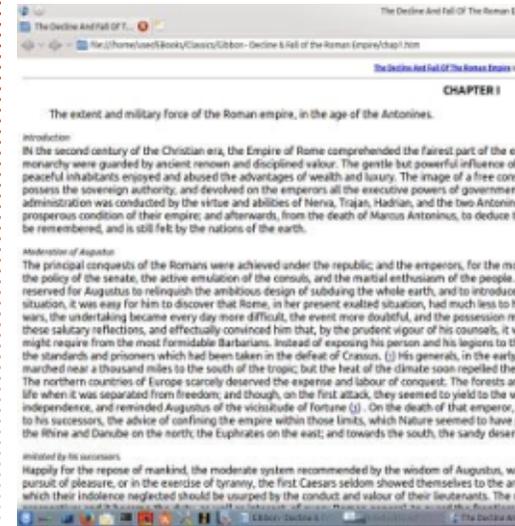
these days. Below is the absolutely amazing VLC video player, with an image suitable to scaring your children if they're misbehaving:

## EBooks

Finally, this distribution of Chrubuntu already came with plenty of readers built-in to open HTML, TXT, or PDF version Ebooks, something else teenaged me would have dearly loved, and middle-aged me can still appreciate.

Project Gutenberg has enough free classical literature to keep a reader invested and engaged for years. I can't recommend 'The Three Musketeers' or any of its sequels

highly enough, they are fantastic reading.



So, that's a fairly representative, but not exhaustive, idea of what Chrubuntu allowed you to do with an inexpensive Chromebook, after an almost entirely automated installation process. Sadly, Chubuntu as a project has been discontinued, but tune in next time and we'll explore Chromebook Ubuntu possibilities further.



**Richard 'Flash' Adams** lives in rural north Alabama and has been a computer support technician, a business analyst, a software salesman, a sales analyst, a QC team lead, and is now disabled/retired. He enjoys reading, NFL football, computer and video games, cooking, and playing with Baby, his cockatiel. Feedback and suggestions are welcome at [acer11kubuntu@gmail.com](mailto:acer11kubuntu@gmail.com).



It's hard to believe that it's been a year since I started this series of articles. It only seems right to go back to the beginning with the Raspberry Pi Pico and do something new with it, since we've spent so many months on the ESP series microcontrollers.

This time, we will work with the RPi Pico and use a si7021 Temperature and Humidity sensor along with a ssd1306 OLED display. The wiring is basically the same as any RPi Pico with the ssd1306, but we'll extend I2C to work with the si7021. I got my si7021 from Adafruit for less than \$10 USD. <https://www.adafruit.com/product/3251>

You can find a driver for the si7021 that I modified to work successfully on the RPi Pico at <https://github.com/gregwa1953/SI7021-MicroPython-RPi-Pico>. You'll need to copy this driver to the RPi Pico. You'll also need to have the ssd1306 driver that we have used multiple times on the Pico as well.

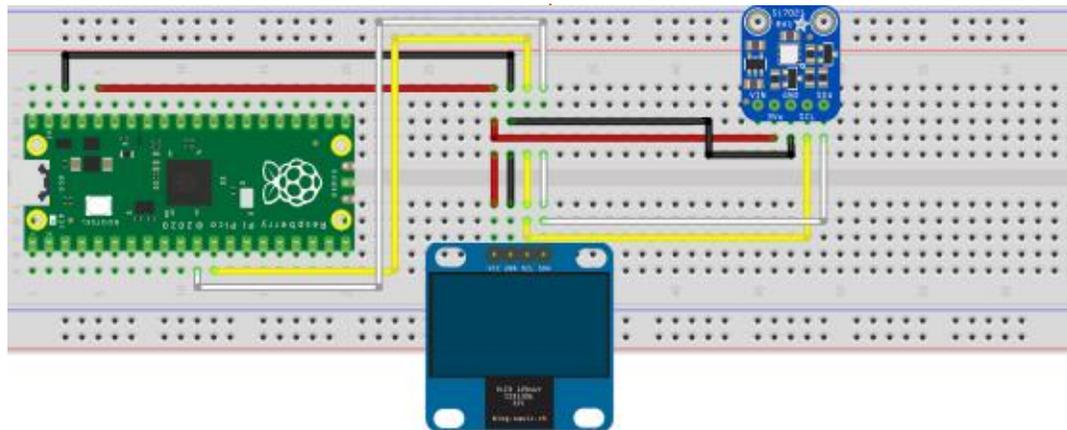
Here is the wiring diagram:

I always run the i2cscan.py utility to verify my wiring and that all my I2C devices are working properly. When you run it, you should see a response of:

```
0x3c
0x40
```

Of course, the 0x3c is the display and the 0x40 is the Temp/Humidity sensor.

Now, on to the code. I took the si7021 test file that I created for the driver and modified it to support the addition of the OLED display. Here (top right) is the import section.



fritzing

```
from machine import I2C
from SI7021 import SI7021
from ssd1306 import SSD1306_I2C
import framebuf
import time
```

Now we need to set up our devices in the code:

```
WIDTH = 128      # oled display width
HEIGHT = 64      # oled display height

# Setup the standard I2C(0) bus
i2c = I2C(0)      #SCL=GP9 (pin 12)  SDA=GP8 (pin 11)
si7021 = SI7021(i2c)
oled = SSD1306_I2C(WIDTH, HEIGHT, i2c)
```

Once we have all the hardware stuff set up, we can do a small test to verify the OLED is working. We'll sleep for 5 seconds to let the user see it. If you want, you can leave this block out altogether:

```
oled.fill(0)
```

```
oled.show()
oled.text("Raspberry Pi",5,5)
oled.text("Pico",5,15)
# Finally update the oled display so the text is displayed
oled.show()
time.sleep(5)
```

Now we need to start querying the si7021. The si7021 seems to be a bit odd: to get the proper temperature readings, you have to query the humidity first. It's part of the chip firmware. We also use this time to get the dew point (not really needed, but why not?), the serial number, and revision. I've never gotten the revision to show correctly, but that's ok, because the chip runs just fine.

```
humidity = si7021.humidity()
temperature =
si7021.temperature()
print('Temperature: {0}
C'.format(temperature))
print('Temperature: {0}
F'.format(temperature*9/5+32)
)
humidity = si7021.humidity()
print('Humidity:
{0}'.format(humidity))
dew_point =
si7021.dew_point()
print('Dew Point:
{0}'.format(dew_point))
serial = si7021.serialnumber
print(serial)
revision = si7021.revision
print(revision)
```

This is what should be displayed in the IDE REPL:

```
Temperature: 25.17976C
Temperature: 77.32357F
Humidity: 41.80579
Dew Point: 11.29874
bytearray(b'\x0c\xfe\x854\x15
\xff\xff\xff')
b' '
```

Now we can finally get down to the business of reading and displaying the Temp/Humidity on the display (top right).

As you can see, we go into a “forever loop” and clear the display (oled.fill(0), oled.show()). Then we pull the temperature, humidity and dew point. As I’ve stated many

times, I can’t think in metric anything, so I convert the temperature to Fahrenheit so I can understand it.

I print to the REPL, then create two strings to send to the OLED, one for temperature that starts a column 5, row 5, and one for the humidity that shows at column 5, row 15. Again, we call the oled.show() method to push the data to the display, and sleep for 5 seconds. Feel free to change the sleep time up or down.

That’s it. An easy project for a good and solid Temp/Humidity sensor.

My si7021 from Adafruit is the one that comes with the STEMMA/QT female connectors on each end. I got a 150mm STEMMA/QT to Male Pin cable for less than \$1.00 which allows me to quickly plug into the breadboard.

I’ve put the code, drivers and the wiring diagram on my repository at [https://github.com/gregwa1953/FCM-178\\_MicroThisMicroThat](https://github.com/gregwa1953/FCM-178_MicroThisMicroThat).

Until next time, as always; stay safe, healthy, positive and creative!

```
while True:
    oled.fill(0)
    oled.show()
    temp = si7021.temperature()
    tempf = temp*9/5+32
    hum = si7021.humidity()
    dp = si7021.dew_point()
    print('T: {0:.2f}F H:{1:.2f}'.format(tempf, hum))
    tmp='{0:.2f}f'.format(tempf)
    hum1='{0:.2f}%'.format(hum)
    oled.text(tmp, 5, 5)
    oled.text(hum1, 5, 15)
    oled.show()
    time.sleep(5)
```



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



# Linux on Your iPad

For as low as \$4.95, you can have your own personal Linux cloud computer in minutes on any device.





# UBPORTS DEVICES

Written by UBports Team

We are happy to announce the release of Ubuntu Touch OTA-22, the very latest update to the system! OTA-22 will become available for the following supported Ubuntu Touch devices over the next week:

- Asus Zenfone Max Pro M1
- BQ E4.5 Ubuntu Edition
- BQ E5 HD Ubuntu Edition
- BQ M10 (F)HD Ubuntu Edition
- BQ U Plus
- Cosmo Communicator
- F(x)tec Pro1
- Fairphone 2
- Fairphone 3
- Google Pixel 2 and 2 XL
- Google Pixel 3a and 3a XL
- Nexus 6P
- LG Nexus 4
- LG Nexus 5
- Meizu MX4 Ubuntu Edition
- Meizu Pro 5 Ubuntu Edition
- Nexus 7 2013 (Wi-Fi and LTE models)
- OnePlus One
- OnePlus 2
- OnePlus 3 and 3T
- Oneplus 5 and 5T
- OnePlus 6 and 6T
- Samsung Galaxy Note 4 (910F, 910P,

- 910T)
- Samsung Galaxy S3 Neo+ (GT-I9301I)
- Sony Xperia X
- Sony Xperia X Compact
- Sony Xperia X Performance
- Sony Xperia XZ
- Sony Xperia Z4 Tablet (LTE or Wi-fi only)
- Vollaphone and Vollaphone X
- Xiaomi Mi A2
- Xiaomi Mi A3
- Xiaomi Mi MIX 3
- Xiaomi Poco F1
- Xiaomi Poco M2 Pro
- Xiaomi Redmi 3s/3x/3sp (land)
- Xiaomi Redmi 4X
- Xiaomi Redmi 7
- Xiaomi Redmi Note 7 and 7 Pro
- Xiaomi Redmi 9 and 9 Prime
- Xiaomi Redmi Note 9, 9 Pro, 9 Pro Max and 9S

The Pine64 PinePhone and PineTab are updated independently of the rest of these devices. The stable channel for the PinePhone and PineTab will not receive an update labeled "OTA-22".

## WHAT'S NEW?

### This release of Ubuntu Touch is still based on Ubuntu 16.04.

For the Volla Phone X we are switching to a Halium 10 system image. This enables the fingerprint reader and fixes a few other problems. Volla Phone X is younger than Volla Phone and therefore was recommended to run with a later Android base. We originally released it with Halium 9, and now the in-place upgrade keeps us very excited: The updater has to flash a few critical system partitions. While it was tested extensively random errors could happen, resulting in a soft-bricked device. In such a case please contact HalloWeltSysteme via their support.

Support for camera in Morph browser. Now video calls finally work! This is probably the most important feature of this OTA. Many people have begged us to make video calling an option. Now this is still only in the browser, but we think it already can be a great relief. And it is the door-opener to video calling in Apps. (fredldotme)

For some devices with FM radio mardytardi is trying to land an FM radio daemon plus App in the store to allow real analogue radio listening. While this is not fully there yet, the daemon is already in the image, the rest will come with the next OTA(s). Lets wish him luck!

QQC2 Apps will now follow the system theme, if this is set to dark those Apps will also show dark theme. (dobey)

The greeter (lock screen) has got some improvements over the already rolled out rotation update from last OTA. And it even rotates! Also the emergency bar at the bottom is now layed out nicely. (capsia)

For the Pixel 3a / 3a XL: a lot of improvements to sound quality and volume control. Also this device has now a "booster mode" enabled which will limit the number of CPUs and will configure other savings when the screen is turned off. (fredldotme)

For the Oneplus 5 / 5T: the port

is now really complete, another good option to take if you need a phone that "just works (tm)" (Flohack74)

-WebGL finally turned on for most devices (dobey, mariogrip)

Dialpad autocomplete in the dialer app: While typing numbers you will see contacts appearing that fit the number you are typing. Press the contact to shortcut the dialling process (lduboeff)

## KNOWN ISSUES

Some older devices (Legacy or Haliu 5.1 ports) with 32bit (armhf) images seem to struggle with WebRTC and/or WebGL quite a bit. WebGL is turned off (blacklisted) for:

BQ E4.5 and E5  
Meizu MX4  
Nexus 4  
Nexus 7 2013

Those were blacklisted since they cause Morph browser to crash.

If WebGL or WebRTC simply wont work on your older device and its not listed here, please drop us a

message in the forum!

Pixel 2 and 2 XL: while the devices are improving currently the power consumption is really high. This is due to sleep deprivation when WiFi is enabled and the device is connected to an AP. Its not optimal, but with not using WiFi that much the power consumption can be managed.

## BUGS AND ISSUES FIXED

- Shader cache for QML is now working correctly and will hopefully speed up a few milliseconds when Apps need a shader :)

- Messaging App does no longer crop MMS images.

- OnePlus 5T has now a working fingerprint reader. (Flohack74)

- On devices that already got a required kernel patch camera permissions are enforced again. We will encourage all porters to fix that for their devices, unfortunately it cannot be done centrally. So that might still take one OTA or 2 to land everywhere (fredldotme)

- If you are trying out ringtones or

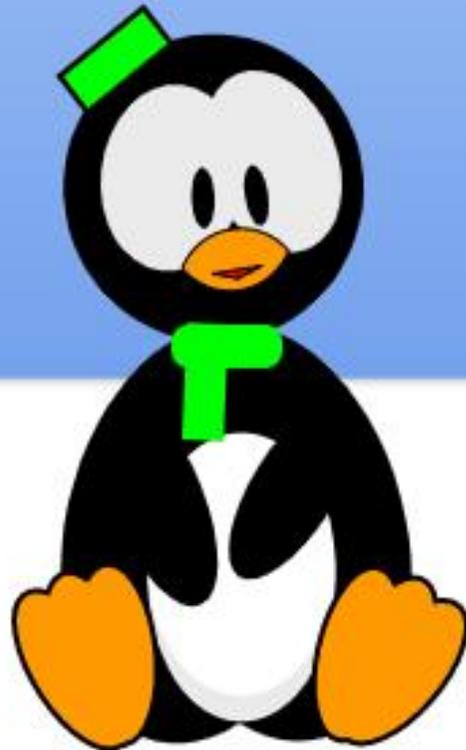
notification sounds and close system settings the playback will be stopped now properly (lduboeff)

- Some devices, again also the OnePlus 5, had an issue where the device would not return to sleep if a push notification arrived, but stayed on for the extended screen timeout. This should be fixed now. (Flohack74)



# THE DAILY WADDLE

LOCKDOWN PICK-UP LINE:  
IF COVID-19 DOESN'T  
TAKE YOU OUT, CAN I?





# MY STORY

Written by Olivier

I've been thinking about writing an "article" for the French FCM for a long time, but I haven't dared to ... until today! In this article, I might startle people who are, without question, in favor of FOSS and/or Ubuntu (and I apologize about it beforehand).

As far as I can recall, my first contact with the world of Open Source was during an "Ubuntu Party" in 2010 at the Cité des Sciences et de l'Industrie of Paris. There I attended lectures which seemed technical and were addressed to a small group of specialists, all of whom knew each other... So I finally left the "party" more quickly than I'd expected to, but some of the information has stayed with me, and that has meant that I have gone back to such "parties" (either to listen to lectures, even if I didn't understand everything, or to help as a volunteer).

To sum it all up, I told myself that the philosophy of FOSS is interesting, but that Gnu/Linux and Ubuntu remain « technical »

nonetheless. Then I decided to update my machine(s), which had (or would have) Ubuntu on it/them – without worrying about the details. I didn't want to touch the command-line, especially since that was one of the things that were emphasized at the Ubuntu Parties (no need for the command-line). So that was what I did: I upgraded everything every time a new version came out.... Finally, I had to do a bit of command-line with just a few commands: `apt-get update / install / remove / autoremove / autoclean / clean`, and `dpkg` (just for LibreOffice). A while ago, I installed `gdebi` to take care of installing `.deb` files. Out of laziness, I guess, I had always refused to use the command-line because, in the back of my mind, I thought I might "convert" other people to Ubuntu...

Time has gone by and, during the lockdown, I got an email from the principal of my son's middle school, proposing some county (Indre et Loire) computers (on loan, I think) for kids who had none at home. The machines were distributed very quickly, but it was

impossible to honor all the requests, and it was then that I had an idea.

In May and June of 2021, I began my own personal crusade: I looked up the biggest companies in my "département", found the director's name and deduced his/her email address and I sent him/her an email explaining that I wanted to recuperate machines (preferably laptops) that had been discarded, in order to recondition them and give them to kids in middle school who had no equipment.

Fortunately, a big company replied affirmatively and I got 20 portable computers (Intel i5 with 8 GB of RAM). I had to "join" an association (the Center for social and cultural activities) in order to take advantage of their gift.

Next I had to convince suppliers with whom I work to replace the mechanical hard drives with SSDs and to change the batteries (all of which has been done).

My idea now is to get the help of the principal of the middle school, that of the parent-teacher associations and the Center for social and cultural activities, as well as that of the social worker, so I can identify the students in need. After that, I plan to take time with the kids who have received the machines in order to give them a minimum of training. I would give them the (very) basic ideas of FOSS, install Ubuntu with the student (ideally in the presence of a parent or big brother or sister as well), and explain how to update it, install software, and so on and so forth.

The objective is to have machines that provide everything they need, with LibreOffice, VLC, Firefox/Brave, Gimp, Transmission, etc. I hope I will be up to the job of training them and transmitting the message.

Even before I trained the first beneficiary, I sent another email just yesterday (the 19th of January, 2022) to the elected officials of the "département" of Touraine to propose the same procedure

## MY STORY

(collecting, reconditioning, training) at the county level, my target being the middle schools (which the county manages) and, after all, why not the high schools... To convince them, I cite both "saving money" and reducing electronic waste. We'll see how it goes!

There you have it, the story of me and the world of Open Source and Ubuntu... I'd appreciate your contacting me and telling me about your own experiences if the projects I've described seem familiar to and/or appeal to some of you.

## THE FULL CIRCLE APP FOR UBUNTU TOUCH - UPDATED!



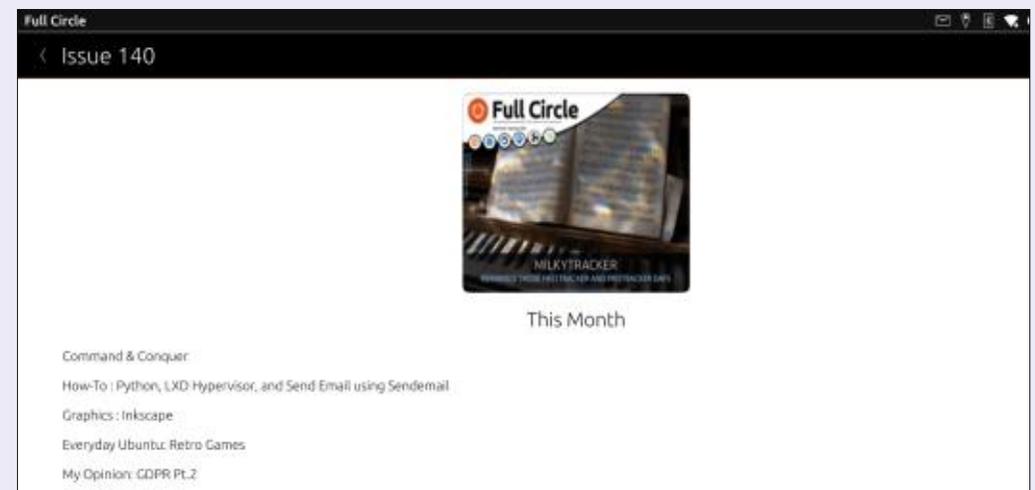
**Brian Douglass** has updated his FCM app for Ubports Touch devices that will allow you to view current issues, and back issues, and to download and view them on your Ubuntu Touch phone/tablet.

### INSTALL

Either search for 'full circle' in the Open Store and click install, or view the URL below on your device and click install to be taken to the store page:

<https://uappexplorer.com/app/fullcircle.bhdouglass>

**HUGE thanks to Brian for this.**





We left off in the previous article with the groundbreaking “Mother of all Demos”. Once into the '70s, NLS was mostly used internally at the Stanford Research Institute. There were a few events and issues that prevented further adoption. The user input required remembering numerical codes via the Chorded Keypad shown below.



It worked like playing the piano, where you could press a combination of the 5 keys as if you

were playing a chord.

Other issues were the restrictions of the time-sharing computer mainframe systems. The creation of the more powerful Minicomputer was also less expensive to buy and use (in regards to electrical power requirements). Even though there were successful ports of NLS to the Mini, there was still a steep learning curve. Due to some disagreements between Douglas and his team over plans for NLS, many left to join Xerox at their Palo Alto Research Center (PARC).

Xerox PARC is not just responsible for the advancement in the graphical user interface, they also created the Laser Printer, Computer generated Bitmap graphics, and Ethernet – to name a few. They were founded in 1969 as the Research and Development division of Xerox. Using the knowledge gained from NLS and the new Minicomputer architecture, Xerox’s Special Programs Group built their Minicomputer called the Alto. It was the first computer

designed for use with a graphical user interface on March 1st, 1973. Here is a picture of it shown below.



Some argue that Alto is the first personal computer, while others say it was a small Minicomputer. In either case, it was quite a machine for its day. It used a TTL-based CPU at 5.88 MHz, with 128 kilobytes of memory, 2.5 MB cartridge (like hard drive storage), 606 x 808 resolution monitor, keyboard, 3-button mouse, 5-key chorded keypad, and Ethernet.

The Alto would boot using the Alto OS (the operating system) to a text command interface. You would need to type the command to load the program you want to use. This new way of displaying text and graphics on the screen was called WYSIWYG (What you see is what you get). There is a dispute over the origin of that phrase. For our intent and purposes, I will use the 1974 release of Bravo mentioned below. It is believed to be the first use applied to computers.

Here is a list of some of the available programs (some dates and developer information could not be found):

## BRAVO

Bravo was the first WYSIWYG typesetting program created by Butler Lampson and Charles Simonyi. It was a mode based editor, where you had the command input mode and text input mode. Typesetting functions like cut, paste, delete, italic, bold, position, justification and fonts were done in command mode.

## MY OPINION

While typing text was done in insert mode. For example: To enter text you press the i key, then type what you want, followed by the esc key. It will print what you typed and return to command mode. It was a bit cumbersome to use for the average person.

### GYPSY

Gypsy was the replacement for Bravo. It was based on Bravo and created by Larry Tesler, Timothy Mott, and other colleagues in 1975. Gypsy did away with the modes, instead utilizing the mouse, keyboard, and the chorded keyset. To enter text, just click the mouse pointer where you want to begin, and start typing. Cut, paste, etc, use keys on the keyboard and chorded keyset. PARC made much better use of the keyset compared to how it was used on the NLS. I will include a video demonstrating someone using Gypsy on an Alto. It is very similar to how it works on modern computers.

### LAUREL AND HARDY

They were the Email programs, Laurel was first and Hardy was the replacement. Laurel was created by

Doug Brotz in 1981. Side note, PARC didn't create Email.

### SIL

A vector graphics program for creating technical drawings.

### MARKUP

A bitmap editor which was an early paint program.

### DRAW

A graphical editor using lines and splines.

An integrated circuit editor which showed the design as it was being created, WYSIWYG. The editor was based on the work by Lynn Conway, Carver Mead, and the Mead and Conway revolution. It helped advance future semiconductor chip designs.

SmallTalk programming language and development environment. It was an early Object Oriented programming language first released in 1972.

There wasn't any spreadsheet or database software at that time. It

wouldn't be until 1979 that VisiCalc was created. It was the first spreadsheet program created by Dan Bricklin and Bob Frankston.

Listed below, I will link some YouTube videos to show how some of these applications looked and how the computer interfaces functioned on the Alto.

<https://youtu.be/Dh mz 68 CII 9 Y>

The Gypsy text editor was demonstrated by Larry Tesler, a co-creator, and Tim Mott (not pictured). It is 1 min 30 seconds.

<https://youtu.be/t n g r L v y i N E I>

The Laurel email client was demonstrated by one of the developers, Doug Brotz. It is 14 min 18 seconds, worth the watch in my opinion. You see the pride he still has for his creation.

[https://youtu.be/q\\_N a 1 S J X S B q](https://youtu.be/q_N a 1 S J X S B q)

The Bravo text editor was demonstrated by Charles Simonyi and Tom Malloy, some of the developers of Bravo. It is 15 min 49 seconds. The first half is about the history, and the demo begins at 6 min and 30 seconds. You can skip

ahead since much of what he says echoes what I stated above. It is quite amazing what they could do in 1974.

FYI, Charles Simonyi went to work at Microsoft in 1981 and was the primary developer of what became Microsoft Word. It was originally called Multi-Tool Word and was released in 1983. The name was later shortened to Microsoft Word.

The Alto and the later Alto II, though never an official commercial product, sold 2,120 units (120 Alto and 2000 Alto II). In 1978, Xerox donated 50 units to MIT, Stanford, Carnegie Mellon, and the University of Rochester. Once these Alto's were out in the public, they drew great interest. Two years later, in 1975, an update was created, but I can't find any references to specific changes compared to the original.

By 1977, Xerox began developing their first commercially available GUI computer called the Xerox Star. All design and development was done on the Alto II. During the same time, to compete with existing computer systems available at the time, Xerox also developed the Xerox 820. It

used the CP/M (Control Program for Microcomputers) operating system, a predecessor to DOS; both were text-based interfaces. The 820 was sold with a smaller monitor using 24 lines of 80-characters, and a keyboard. None of the more advanced features in the Alto were used. Management inside Xerox didn't see a market for the advanced features in the Alto and the only people who used the Alto was PARC. Most people inside the Xerox corporate offices requested the 820 over the Alto. The 820 was the first entry into the PC market for Xerox, but management was not sure of its marketability because of the company's roots in laser printers. This unproven technology (by their assessment) made them wary of this business risk.

Once the 820 was released, it was met with mixed reviews and acceptance. Many reviews of the 820 called it a 'me too' product which was more expensive than the competition. Though production of the 820 would continue until 1985. Xerox wanted to compete better in the market, accepted the risk, and created the Systems Development Department (SDD) in El Segundo, California, to develop the Star. The

Star was officially called the Xerox 8010 Star Information System.

SDD used what was learned from the Alto and Alto II with people from PARC to design the "Office of the future". They upgraded the hardware to an AMD Am2900 CPU; 384 KB of memory (3 times more than the Alto) expandable to 1.5 MB; 10, 29, or 40 MB hard drive; and an 8 floppy drive. The monitor was upgraded to 17" with a resolution of 1024 x 800 @ 38.7 Hz. They kept the 3-button mouse but opted to replace the 5-key keyset in favor of a redesigned keyboard. The new keyboard incorporated functions the keyset provided, and added more. They found that the keyset was difficult to use by a wide group of people. The new keyboard included keys like delete, copy, and move, that were previously performed with the keyset. Other keys were for typesetting functions like center, bold, italic, and underline.

Another advancement was called Pilot. It was a single-user multitasking operating system. Instead of booting to a command prompt like in Alto's Alto OS, the Star loaded the graphic environment where you enter your

username and password. This was the beginning of WYSIWYG (see discussion of the Alto, above) on the desktop. The key philosophy to this interface design was to mimic common office items already understood. For example, the filing cabinet holds documents, so there is a picture of a filing cabinet. Documents are displayed as file folders. Once logged in, you would see the desktop – which was another office metaphor. The GUI was much easier to use over previous designs. Clicking on a document would open the required application. The idea of cut-and-paste, though not invented by PARC or SSD, was used on the Star. An example of how you move one document to another folder: click the document and press the move key on the keyboard, locate the folder you want to move to, and click it with the mouse pointer. These same functions also worked in a document editor. Selecting text and pressing the delete key would delete that selected text. Sounds basic by today's standards but, in the late 1970s, this was a breakthrough in functionality.

Listed below are some videos showing how the Star evolved.

<https://youtu.be/Cn4vC80Pv6Q>

Xerox Star User Interface demonstrated by David Smith of Xerox SDD.

Incidentally, he was one of Douglas Englebart's programmers at the Augmentation Research Center (ARC) at the Stanford Research Institute (SRI), which was discussed in my previous article. He was one of the programmers who left to join PARC. He became one of the six principle designers of the user interface for the Star. The video is 8 min and 41 seconds. This is a marketing video created by Xerox. It is pretty good at showing how the Star functioned.

<https://youtu.be/ODZBL80JPqw>

Here is part 2 of the previous video. This demonstration is by Charles Irby. He worked with David at SRI, and was the chief architect on the NLS (which was mentioned in detail in the previous article). At Xerox, he led the user interface design for the Star. This video is 8 min and 1 second. He goes into detail on how to work with documents.

In 1979, Xerox reached out to

Apple computer, which was located in the nearby city of Cupertino. Xerox had a lot of experience in manufacturing Laser Printers and producing them in volume, but they were not sure they could handle the demand for their computers, since this was a new market for them. Apple already had its process down and was quite successful. Some deals were made between the two companies. Steve Jobs, the co-founder and CEO of Apple Computer, requested he be given some disclosure agreements on what Xerox PARC was working on. Xerox management agreed and was invited for multiple visits, to the surprise of the PARC researchers. I will post a video I found that explains the details from a first-hand account.

<https://youtu.be/ZOF-j6Nxm04>

Larry Tesler talks about his interactions with Steve Jobs during his many visits to PARC.

This is a very important part of history that changed the direction of the GUI. It has been misunderstood ever since. All of the computing systems at that time were text-based, with some graphical applications. All input was

via the keyboard. The use of the mouse was still non-existent. The light pens I mentioned in the previous article were used, but not as commonly. Most interaction with a computer was done via the keyboard.

Apple had a successful run of their Apple I and Apple II series of computers using a text interface. In 1978, the Apple III was the next model using the text-based interface. Apple was also developing a new computer in the same year called the Lisa. It was also originally another text-based interface, but the goal was to make it more modern. This was a year after the initial development was when Steve was shown the Alto, mentioned above. After subsequent visits with members of his design team, the decision was made to re-think the design of the Lisa.

In the next article, I will bring us into the 1980s with a continuation of the development of Apple's Lisa. The 1980s will be quite a formable decade for the GUI.



# HOW-TO

Written by Ronnie Tucker

# Write For Full Circle Magazine

## GUIDELINES

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

## RULES

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

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

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

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

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

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

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

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

## TRANSLATIONS

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

## REVIEWS

### GAMES/APPLICATIONS

When reviewing games/applications please state clearly:

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

### HARDWARE

When reviewing hardware please state clearly:

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

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



# REVIEW

Written by Adam Hunt

# Ubuntu Unity 21.10

Ubuntu Unity 21.10 is the fourth release of this relatively new Ubuntu flavor which uses the Unity interface. Out on 14 October, 2021, this is the final "standard" release of three, leading to the next long term support (LTS) version which is due out on 21 April, 2022.

Up until this release, each new Ubuntu Unity version has been better than the previous one, building on strengths, but Ubuntu Unity 21.10 has reversed that trend and has some issues that will need ironing out prior to the LTS release.

## SYSTEM REQUIREMENTS

Ubuntu Unity does not detail any system requirements but it is probably reasonable to assume that it is the same as Ubuntu 21.10 – requiring a minimum of a 2 GHz dual-core processor and 4 GiB of RAM.

## BOOTING IT UP

I downloaded the ISO file from the Ubuntu Unity website via

BitTorrent and completed a SHA256 check on it to make sure that the downloaded file was good. I used UNetbootin to write it to a USB stick as it conveniently leaves the stick in FAT32 format. For testing, I ran it from the USB stick.

I tested Ubuntu Unity 21.10 on new, high-end hardware with a 4.7 GHz quad-core processor and 32 GB of RAM, and, as expected, it ran very fast and smoothly. I also tested it on a ten year old laptop with a dual-core 2.9 GHz CPU and 4 GB of RAM, and performance was still good.

## NEW

There is quite a bit that is new in this release.

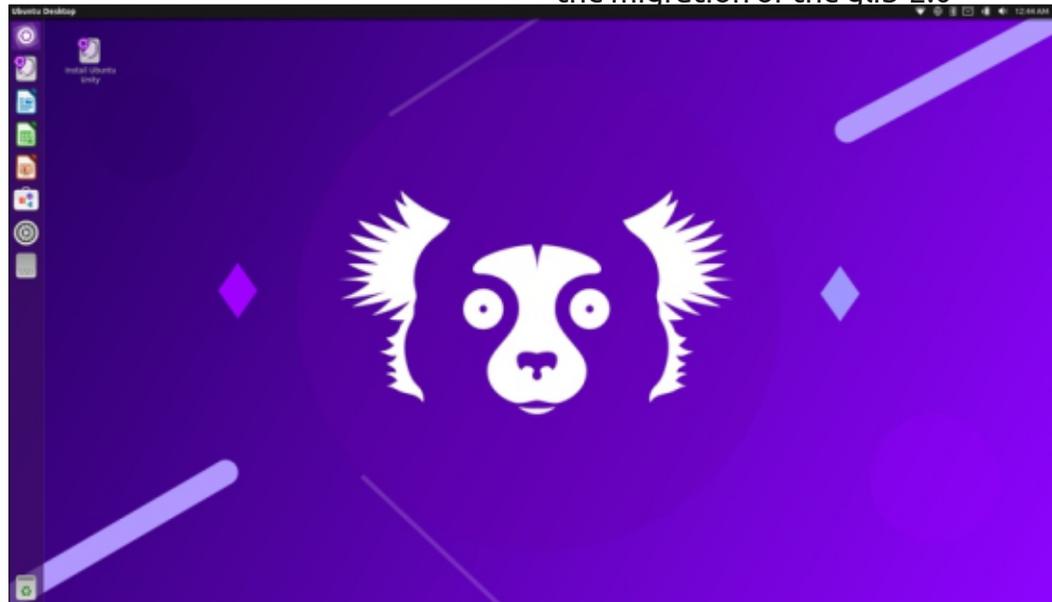
To start with, after many years of the Unity interface being stuck at version 7.5.0, a new version, 7.5.1, was released on 1 June, 2021, in good time for this release. This new version of Unity mostly brought just a long list of minor changes but, as the Ubuntu Unity 21.10 release announcement noted, also "updated indicators and the migration of the qlib-2.0

schemas to gsettings-ubuntu-schemas".

Ubuntu Unity 21.10 also moved to the snap version of the Firefox web browser, following the lead of the mainstream Ubuntu 21.10 release. The developers of Firefox, Mozilla, had requested the move of Firefox to a snap package to simplify their support for it on Linux. Snap is a "distro-agnostic" packaging system that will allow one snap package to be used across all Linux distributions. Up until now, there have been multiple package formats in the Linux world, and moving Firefox to snap format makes Mozilla's job much easier. It also means that users will get new Firefox releases automatically and several days sooner.

Not everyone is happy with the move to snap for Firefox, at least so far. Because of the way snaps work, containing all dependencies, there are complaints about file size bloat and application opening speed.

The other Ubuntu flavors and the Ubuntu derivatives, like Linux



# REVIEW

Mint, are mostly sticking with the .deb version for their 21.10 releases. For now, both snaps and .debs will remain supported but, at some point in time, the .deb package will be removed from the Ubuntu repositories, possibly as soon as the upcoming spring of 2022's LTS release. At that point, the Ubuntu flavors and derivatives will have to make a decision on how to proceed: move to the snap version of Firefox, compile and maintain their own .deb, change browsers, or some other solution. By moving to the snap package for Firefox in 21.10, the Ubuntu Unity developers have already made their decision, which leaves them ahead of the game and not having to worry about this in the future.

In testing out the snap version of Firefox on Ubuntu Unity 21.10, it opened quite quickly, ran fine, and integrated well for the window themes.

This release also includes a new Plymouth boot screen image, and a new set of 13 wallpapers of which seven are "indri-themed", as 21.10's development code name is Impish Indri, named for the Madagascan lemur-family primate.

Aside from the release itself, there have been other changes at the Ubuntu Unity project. The website has received an overhaul and now sports no images at all, not even a logo, just text. Gone too are

all the past release announcements, although thankfully these have been archived on archive.org and archive.today.

Ubuntu Unity also has a new simplified logo which has an attractive look.

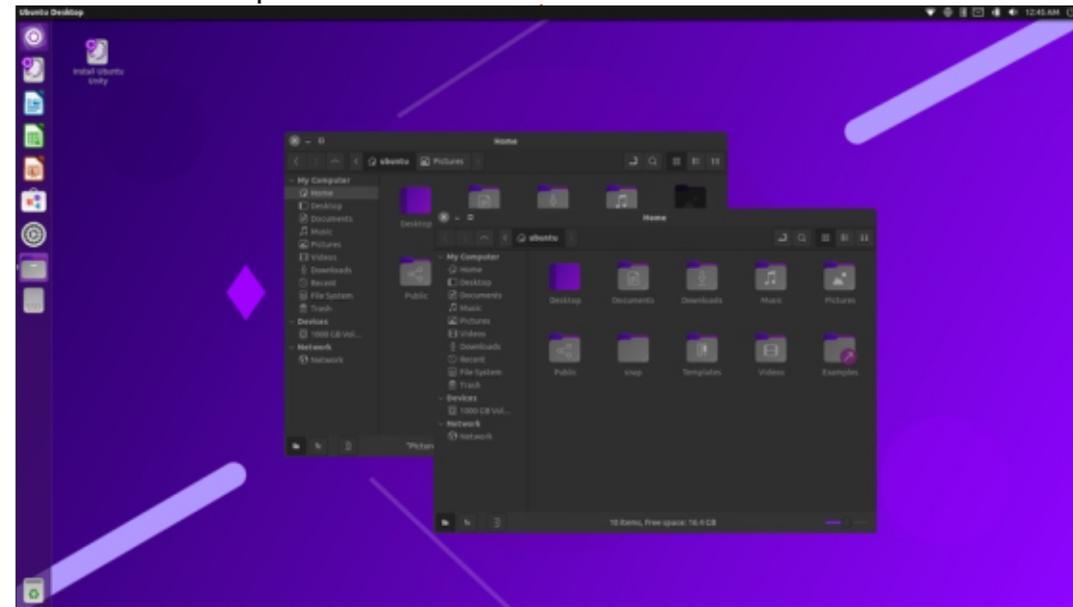
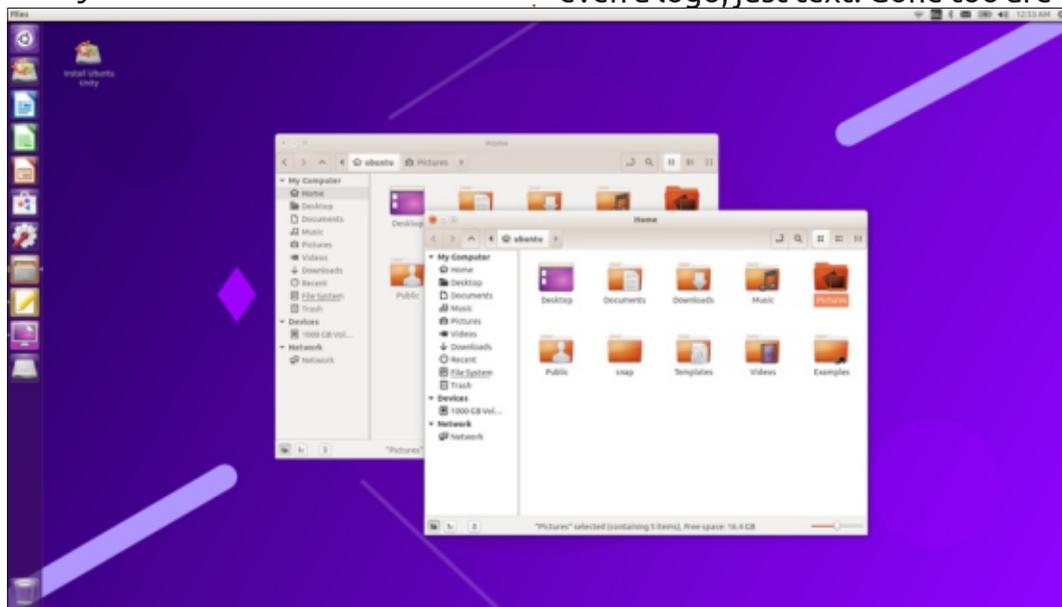
In addition, the project is moving its hosting to GitLab as a result of the need for more bandwidth due to the growth of traffic, all good signs!

The project has also started developing its own snap store to replace the use of the Canonical snap store, snapcraft.io. To be called the lol snap store and located

at lolsnap.org, it was not completed, nor even posted, at the time of this review. It is not yet clear who will be maintaining this snap store and its packages, or who will ensure it is malware-free. For instance, Mozilla has committed to maintaining the Firefox snap package on snapcraft.io, so, will the lol snap store version just be a copy of that snap, or something else? I am expecting more news before the lol snap store is declared operational and incorporated as the repository for a future Ubuntu Unity release.

## SETTINGS

In testing, it quickly became



# REVIEW

apparent that Ubuntu Unity 21.10 has some issues with its settings.

In earlier Ubuntu Unity releases, additional window themes were included, but these could not be accessed from the limited controls in the Settings-Appearance menu. In later releases, the Unity Tweak Tool was included by default, and this allowed setting many more themes, but Ubuntu Unity 21.10 did not include it.

Ubuntu Unity 21.10 shipped with the same default theme as 21.04, which is Yaru-unity-dark. The Settings-Appearance menu allows setting only Adwaita, Ambiance, Radiance, and High Contrast, which means if you change away from the

default Yaru-unity-dark, you can't get it back again. No problem, I thought, I will just install the Unity Tweak Tool with APT. It installed fine, but upon attempting to open it, it just crashed repeatedly, which may explain why it was not included by default. It looks like there is a bug there, or perhaps an unmet dependency issue. The release announcement makes no mention of this issue, which is disappointing.

## APPLICATIONS

Some of the applications included with Ubuntu Unity 21.10 are:

Archive Manager (File Roller) 3.40.0 file archiver

Cheese 3.38.0 webcam application\*  
CUPS 2.3.3 printing system\*  
Document Viewer (Evince) 40.4 PDF viewer  
Document Scanner (Simple Scan) 40.5 optical scanner  
Firefox 93.0 web browser  
GDebi 0.9.5.7 .deb package installer\*  
Gnome Calendar 41.0 desktop calendar  
Gnome Disks 41.0 disk manager  
Gnome System Monitor 41.0 system monitor  
Gnome Terminal 3.38.1 terminal emulator\*  
Gparted 1.2.0 partition editor  
Image Viewer (Eye of Gnome) 41.0 image viewer  
LibreOffice 7.1.2 office suite  
Nemo 4.8.6 file manager\*  
PulseAudio 15.0 audio controller  
Remmina 1.4.20 remote desktop client  
Rhythmbox 3.4.4 music player\*  
Shotwell 0.30.11 photo manager\*  
Startup Disk Creator 0.3.11 USB ISO writer  
Synaptic 0.90.2 package management system  
Text Editor (gedit) 40.1 text editor  
Thunderbird 91.1.2 email client  
Transmission 3.00-1 bittorrent client\*  
Ubuntu Software (Gnome Software) 40.4 package management system

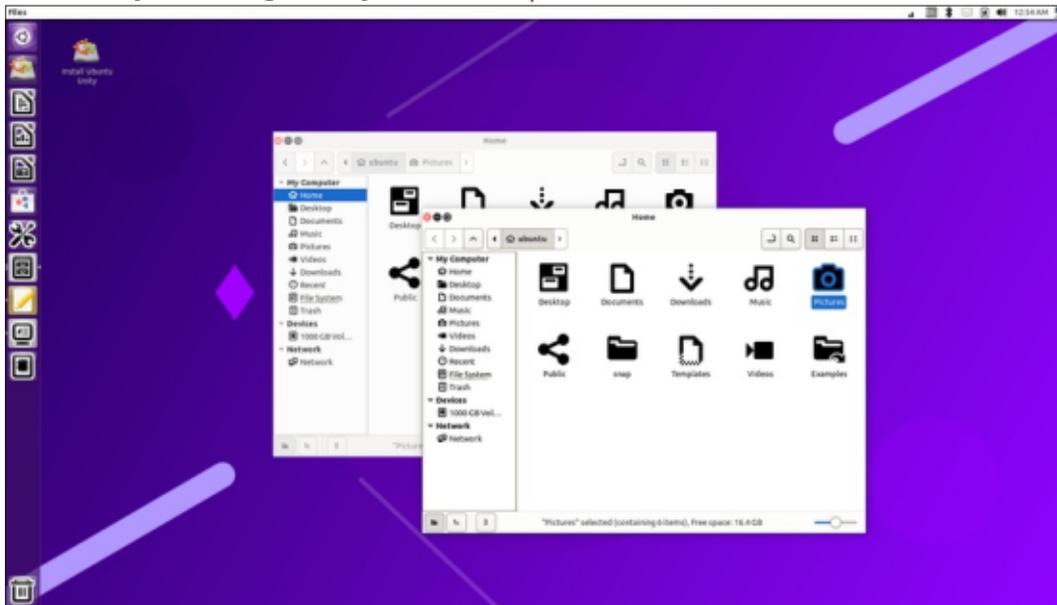
Unity 7.5.1 interface  
Videos (Totem) 3.38.1 movie player

\* indicates the same application version as used in Ubuntu Unity 21.04.

The Synaptic package manager, Remmina remote desktop client, and the Startup Disk Creator USB ISO writer, are all new applications for this release. Remmina and the Startup Disk Creator were both previously included in 20.10 but were deleted in the last release, Ubuntu Unity 21.04.

The re-introduction of the Startup Disk Creator is particularly odd, as it doesn't work to write Ubuntu Unity to a USB stick, so it is of limited use, unless you want to use it to switch to a different distribution.

The applications removed from this release include the CompizConfig Settings Manager for desktop effects, the Kupfer application launcher, and the Timeshift system restore utility. I don't think there was a strong user case to include these in the first place, so trimming them makes some good sense.



# REVIEW

The default file manager remains Nemo 4.8.6 which is a good choice as it integrates well with the Gnome desktop and has better features built into it than the standard Gnome file manager, Files (Nautilus). Nemo incorporates useful and obvious tools that Nautilus lacks, like an "up one level" arrow button.

As in past releases, Ubuntu Unity 21.10 includes the Cheese webcam application and omits a default CD/DVD burning application – which makes sense given that it has been many years since new laptops or desktops came with optical drives. Several other Ubuntu flavors still include default CD/DVD burning

applications, but, increasingly, these inclusions feel like throwbacks to an increasingly distant era.

LibreOffice 7.2.1 is included and is complete, missing only the LibreOffice Base database application, probably its least-used component. It can easily be installed from the Ubuntu repositories, if needed.

Both Gnome Software and Ubuntu Software are once again installed which is odd as they are both basically the same application with different branding. They continue to offer both snaps and .deb files, where available, which at least gives users a choice

of packages.

## CONCLUSIONS

Ubuntu Unity 21.10 is not as strong a release as was expected and has some outstanding issues that were present at the time of its release. The lack of the Unity Tweak Tool, installed by default or even that can be installed and run, means that the themes provided cannot be properly accessed.

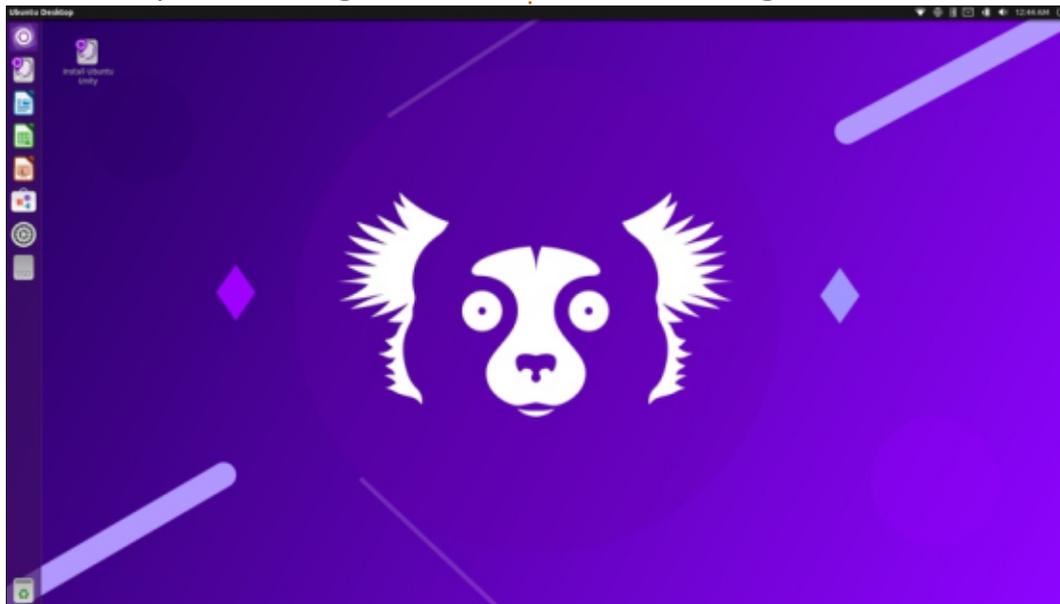
I think it is okay to put out a "standard" release that has unsolved bugs like this, but the developers need to clearly explain the issue in the release announcement and indicate when it is expected to be fixed.

The reintroduction of previously deleted applications like Remmina and the Startup Disk Creator, likewise, may be totally justified, but again, with no explanation in the release announcement, it seems a bit baffling to users and just looks oddly mysterious or at least indecisive.

In both cases, better explanations would help the users understand what is going on behind

the scenes.

Overall, this release feels like a step back from 21.04 and probably will cause most users to wait to upgrade, to see what the upcoming release of Ubuntu Unity 22.04 LTS brings on 21 April, 2022.



**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.



# LETTERS

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

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

## COOKING WITH UBUNTU

I refer to Richard Adams' articles about "Cooking with Ubuntu". Thanks to him for the "tour" of recipe apps he provided. I also did some research to find the best software for my recipes.

I agree Gnome Recipes is promising, but obviously the lack of import functions makes this choice impossible for me, as I would have hundreds of personal recipes to re-enter. Also, development looks very slow, and I could not find any milestone about adding some

import function. I think this is not in the scope of the app.

Today, I use Gourmet 0.17.4, which is still usable with Ubuntu 20.04, even if you need to manually install python 2.7 and download some packages from previous Ubuntu releases (<https://askubuntu.com/questions/1230167/can-gourmet-still-run-on-ubuntu-20-04>).

IMO, Gourmet is the best solution, because it has all functions, especially import, and export to multiple formats. This is important, as I can export my

recipes to .mcb (my cookbook) format, and import the file with the Cookmate app on my Android (for example). That way, I can cook while travelling, or at a friend's home.

Last, there is a Gourmet migration project to python 3. There is already a flatpak package available, and it seems usable (<https://github.com/kirienko/gourmet/blob/master/INSTALL.md>). I just tried it in a VM, and it looks good so far.

Maybe Richard could talk about this in a future issue? As I said, during my investigations looking for a recipe software, Gourmet ended as the best option for my needs (Linux desktop and Android phone).

Pascal

*Richard says: I'm glad you enjoyed the Cooking with Ubuntu series. I have tried previously to install Gourmet, but had no luck doing so. I would love to see a step-by-step tutorial on how you installed*

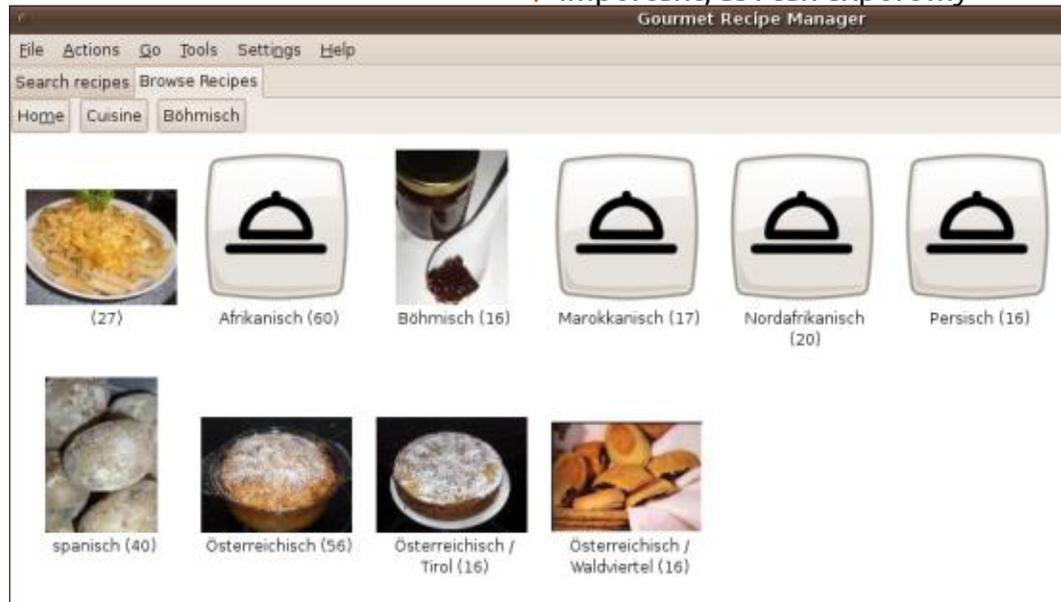
## FULL CIRCLE NEEDS YOU!



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.



# LETTERS

*Gourmet (including instructions on the Python and additional library installation), and how you use it. I'm also curious if it will import the MasterCook format, as I have a lot of MasterCook recipe files.*

**Update from Pascal:** There is a new project, called "Gourmand", maintained by Cyril Danilevski (he was very active on first Gourmet Python 3 project), that can be found here: <https://github.com/GourmandRecipeManager/gourmand/blob/main/docs/installation.md>

So, IMO, it is better to use that version, which is the one that will have bug fixes, etc...

First, you need to run Ubuntu 20.04 (the latest LTS so far), not sure it will work on later versions. Installation instructions are detailed here: <https://github.com/GourmandRecipeManager/gourmand/blob/main/docs/installation.md>

First, download latest flatpak file from here: <https://github.com/GourmandRecipeManager/gourmand/releases/>

Currently, it is gourmand-1.0.0.flatpak file.

Then open a terminal and type the following commands :

```
sudo apt-get install flatpak
```

```
flatpak remote-add --if-not-exists --user flathub https://flathub.org/repo/flathub.flatpakrepo
```

```
sudo flatpak install ~/Download/gourmet-1.0.0.flatpak
```

You can import your MasterCook files. There are several formats (XML, Text, and MCB files). MCB is the best as far as I know.

## DISK CATALOGING AND MQTT

Why oh why are there no decent disk catalogers for linux? Ok, there are some, but most don't work or are old (and unmaintained in some cases). The only one that worked on my system was gwhere, and that couldn't read sda1. I currently use:

```
ls -Rl /home/jan | sed -e 's/^. *jan jan //' > name drive.txt
```

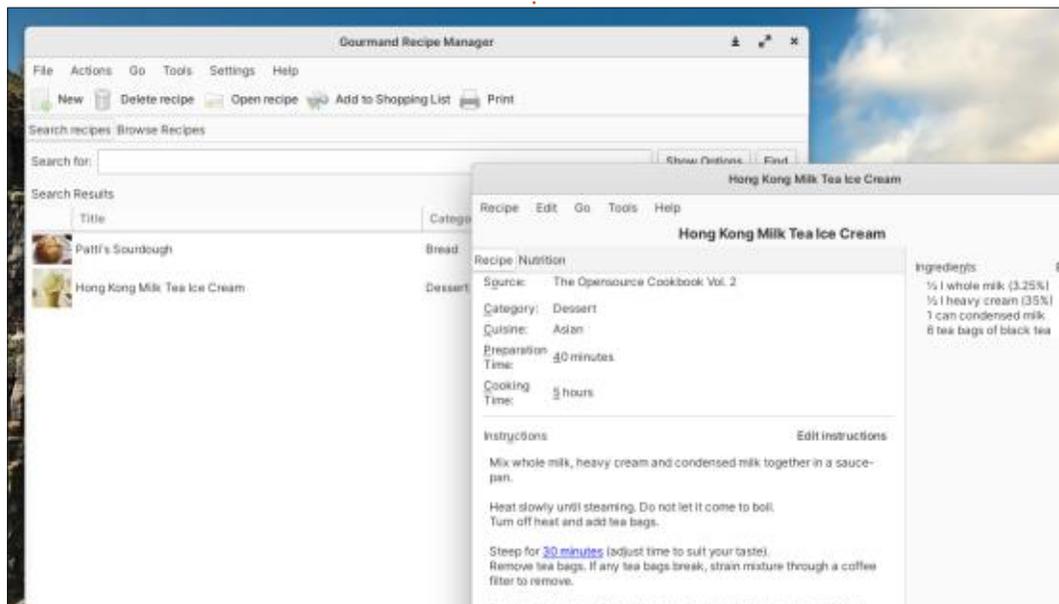
and read the resulting file in featherpad. That works but isn't ideal.

Second, since mqtt is often used,

why are there no examples to show how to use mqtt data in tkinter? Especially, how to change the values when receiving new data. I personally want to use this with node-red as a kind of LoT (Lan of Things) with a browser to display data on a display.

## Bokbus

**Ronnie says:** *anyone out there able to help Bokbus with suggestions? Feel free to email them to [ronnie@fullcirclemagazine.org](mailto:ronnie@fullcirclemagazine.org) and I'll pass them along.*





# Q&A

Compiled by EriktheUnready

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

Welcome back to another edition of Questions and Answers! In this section, we will endeavour to answer your Ubuntu questions. Be sure to add details of the version of your operating system and your hardware. I will try to remove any personally identifiable strings from questions, but it is best not to include things like serial numbers, UUIDs 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.

In one of the companies I worked for, we had a very lax programmer. He would get up and leave for lunch, leaving everything as is. He would sit and work on the porch and people would be coming and going. No matter how many times I asked him to lock his computer at the minimum, it went in one ear and out the other. Explaining that he posed a security risk was water off a duck's back. Usually someone else would bring the laptop inside when it was unattended. Since he was doing a

job for 'big pharma', and he was the only programmer still left on the project who knew what was going on, even the boss was skittish about him leaving and this project failing. So my complaints went to the boss and his 'stern talking' was actually begging. We did not want to hide his laptop as he would have an excuse as to why the project was not on time. One day he got up, got in his car, and went to go buy rotis. I was just about to bring the laptop inside, when I noticed he was signed into Facebook. An idea hit me, as his girlfriend had him on a short leash. I immediately changed his relationship status to single, signed him up for a couple of gay groups and put some cryptic comment and started 'liking' the worst stuff I could find. The first comment was from his girlfriend, a high maintenance, kvetching witch, who lived for Facebook (to put it mildly). She immediately called him and gave him an earful. He was back at the office at the speed of dark. It never happened again. Some people's priorities are different, and to change them may require

some sleight of hand, but security is everyone's concern. It may not sink in until it hits home, and usually, by then it is too late.

Q: I tried to run Ubuntu on my Asus ROG gaming laptop, but suspend does not work, and the fans spin at maximum all the time. The screen will blank, but not come back on again. The screen resolution is off, and I can't seem to change it. The laptop is new and I don't want to break it. I am new to Linux as windows 10 was p\*\*\*\*g me off, changing my browser every time it updates, but Linux seems broken?

A: Usually the gaming laptops are developed for Windows only, unless it is from a Linux vendor like System 76. It takes time for Linux to catch up as the laptop was not made for it and there is no incentive for OEM's to support Linux. Your options are to troll the forums and wait, or go back to Windows for a while.

Q: Can you tell me how to mine bitcoin on ubuntu? I have a Ryzen 7 PC, with an Nvidia 3700 card and 64GB of memory and two M.2 cards. It should be powerful enough.

A: I am sure it is, but I cannot help you there. Maybe try this: <https://blockchain.oodles.io/dev-blog/how-to-mine-cryptocurrency-on-your-system/>

Q: My hand-me-down HP laptop has only WXGA. When I work full-screen, I want it to be like a MAC. No bars visible. Just my app. How can I do this? I loaded Xubuntu because the laptop is old with only 4GB memory. I have MACOS theme installed, but the top bar with time is always there in full screen.

A: If you pin your panel icon to plank, clicking on it a few times should hide the top panel (and any other visible panel in XFCE). Now you can reclaim that space when your browser (or whatever) is full-screen.

**Q**: I am so new to Ubuntu, I don't even know what commands to run. My friend mentioned that it is faster to install software on the command-line. He said I must type `sudo apt install audacity`. Can you explain it to me, I have not typed it yet.

**A**: OK, here goes: `sudo` is to get privileges to write to the system, "apt" is the package manager Ubuntu uses, "install" is telling the package manager what to do, and "audacity" is the software / application that will be installed. There is nothing nefarious about the command.

**Q**: I installed Ubuntu with chrome and chromium. When I play back a video, I get an error -> 'Only secure browsers supported' whatever that means. It does play on my Samsung galaxy tab, so I know the video does work. Why is my chrome not secure?

**A**: It sounds like a DRM issue. Really evil stuff – usually you need to spit on the ground when mentioning it, just to get the bad taste out of your mouth. Since you did not tell me the URL so I can

check it for you, I can only point you somewhere: <https://support.system76.com/articles/protected-content/>

**Q**: Something is wrong after my upgrade. I get a stutter in Ubuntu then it freezes. I can see: Dec 27 09:11:51 dave-hp-pavillion kernel: [86597.479752] audit: type=1400 audit(1643808113.993:97): apparmor="DENIED" operation="open" profile="snap.snap-store.ubuntu-software" name="/var/lib/snapd/hostfs/usr/share/gdm/greeter/applications/gnome-initial-setup.desktop" pid=2263 comm="snap-store" requested\_mask="r" denied\_mask="r" fsuid=1001 ouid=0

**A**: I would suggest uninstalling `snapd` and reinstalling it. Here is a guide to remove it: <https://www.simplified.guide/ubuntu/remove-snapd>. Make a note of your installed snaps, as you will need to install those again as well.

**Q**: Hey. I am connecting a WIFI sound extender via USB cable.

The device is getting powered on, but there is no change in `dmesg`. I have tried all the ports on my machine and I can assure you they work. I will confess that I got it from a thrift store, so mileage may vary. My Ubuntu version is Groovy Gorilla, I have to admit – I love that name. I have USB2 -black- and USB3 -blue- ports.

**A**: Data and power do not travel on the same lines in a USB cable. It may be that the cable is damaged, but only the data part. Get another USB extender. <https://www.electroschematics.com/usb-how-things-work/>

**Q**: I have installed Ubuntu server and tried to set up a gaming server from here: <https://linuxconfig.org/ubuntu-20-04-minecraft-server-setup>. Thing is, I want to uninstall it now, but cleanly. Have my server back to day one. I want to start fresh with a new server. Everything must go except the OS!

**A**: Without sounding flippant, I'd say do a fresh install. Though it IS possible to uninstall everything – usually there are leftovers, even using the `--purge` option. Unless you

made a backup snapshot off when your server was new, so you can do a roll back, it is a lot faster and cleaner to just install a fresh copy.

**Q**: I must admit I am a bit out of it – I used Ubuntu 7.04 last. I installed the latest version and wanted to add a second drive. I followed a tutorial that says I must type `fdisk -l`. When I do, I get 20 lines of `fdisk: cannot open /dev/loop8: Permission denied`. What are all the loops for?

**A**: I am going to go out on a limb here and say the tutorial assumed that you were root. Use `sudo`. As to the second part of the question, I will wager those are snaps. They are mounted as loop devices. Type `df -h` and see.

**Q**: For someone interested in making music, would you endorse Ubuntu studio?

**A**: Ubuntu studio is an all-round creative distribution for music, video, graphics, publishing, and more. If you JUST want to make music, may I suggest KX studio? <https://kx.studio/>

**Q**: When I connect my Ubuntu laptop to my 4K TV, it makes a small window in the top-right. I have a decent HDMI cable for the job, but still it is this tiny rectangle, and it won't stretch the full size. Granted my laptop is from 2011, but it came with an HDMI port, dammit.

**A**: Ok, here is the deal, the older Intel chips do not change resolution on the fly. Connect everything, turn the TV on first, then turn on the laptop and immediately close the lid. Dollars to doughnuts it will be at the resolution of the TV.

**Q**: What is the quickest way for me to see which of my friends are logged into my Ubuntu server? I don't want to message each one. I already did the group message.

**A**: Fastest? Not sure, but if you press 'w' and enter, you should see who is still on.

**Q**: How do I get an older version of software? The version in the Ubuntu software centre does not work with my program, but the

older version worked on 18.04. I don't usually use PPAs, but I will if I have to. I am getting kind of desperate.

**A**: PPAs also will not help. You will need to get the app source code (what is it?) from github or gitlab, and build it yourself. Most of the time, the build instructions are on that page. If not try: ./configure, then sudo make, then sudo make install, and see?

**Q**: I use my little Dell when I go to work at coffee shops, but after updating to 21.10, my wifi card is not working any more. Rfkill says: 1: phy0: Wireless LAN  
Soft blocked: no  
Hard blocked: no

**A**: May I ask why you updated to an unstable version when you want stability? Decide what is more important, having the latest version or stability. Stick with LTS versions if the latter is more important. Otherwise, these things should be expected as those are testing versions for the next stable release.

**Q**: Can I put Ubuntu touch on my Xiaomi A9?

**A**: At the time of writing, no.

**Q**: Hello, my laptop screen flickers whenever I move it. Sometimes the screen goes all funny. I have to shut it down, close the lid and start from where I want the screen to be. I am using Ubuntu 21.04 and my laptop is an i3.

**A**: I would say the cable running from your motherboard to the display, via the hinge of your laptop, is either pinched, frayed or loose. It is a hardware issue.

**Q**: What does it mean when the update error says "does not have a Release file."

**A**: Usually the version of Ubuntu you are using is not supported. In simple terms. See: <https://askubuntu.com/questions/866901/what-can-i-do-if-a-repository-ppa-does-not-have-a-release-file>



**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.



First, for those who don't know, what is Pingus?

Pingus is a side-scrolling puzzle game where the player has to guide a group of penguins from the entrance of a level to the exit; in between the path is blocked by numerous obstacles and dangers that the player has to overcome by assigning actions to the penguins. (A Lemmings clone, if you are old enough).

## HOW TO GET PINGUS?

```
sudo apt install pingus
```

What is a level editor? Level editors represent a game's potential, giving your imagination free reign to create. We do not always want to be constrained by the developer's world, or would like to extend the game beyond what it is. Launch Pingus and let's get started.

You will see the editor in the menu. If you click this, another window will open. This new window is quite confusing. It gives you only

a magenta, grey and black block. Though it looks like drek, you get used to it quite quickly.

The question is where to start? Even how to start? Here at FCM, we will guide you in making a level. I am not promising it will be a good level, as YOU are going to make it, I will simply be your guide. If you have kids, now is a good time to

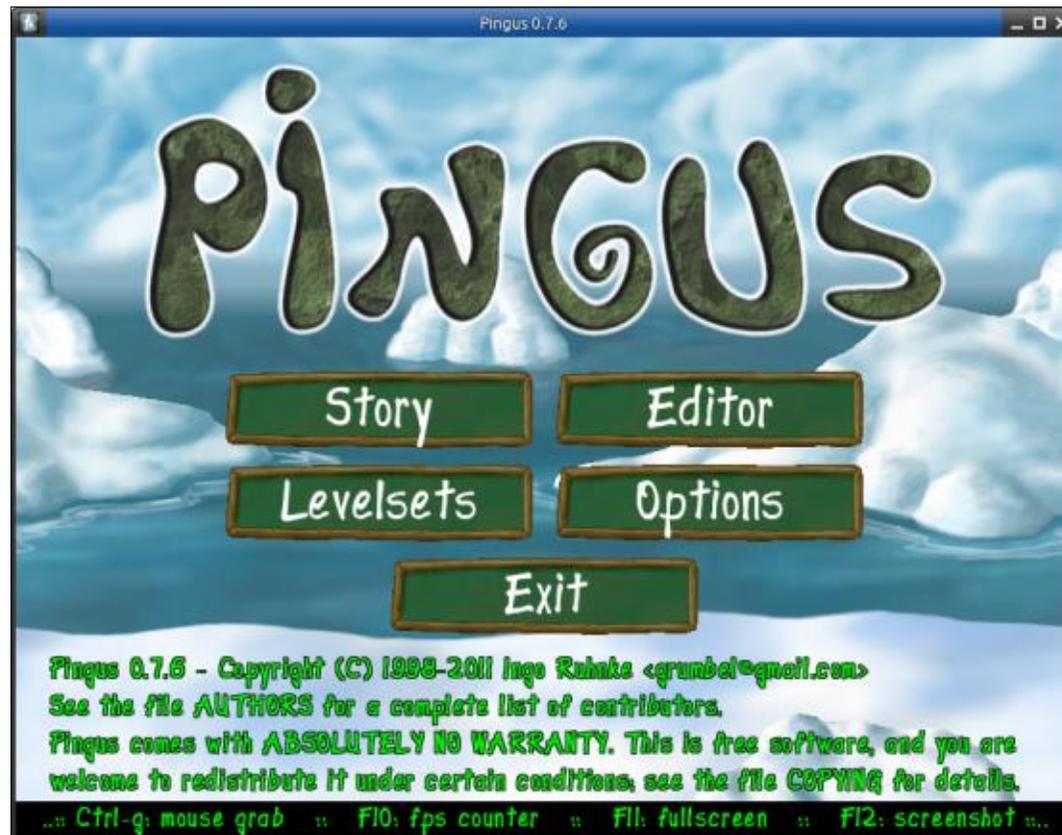
impress them with your '1337 skillz'.

Tip: See - [https://www.teachengineering.org/activities/view/ksu\\_pingus\\_activity1](https://www.teachengineering.org/activities/view/ksu_pingus_activity1)

Let me start by explaining what you are seeing. The magenta block is the level, the grey block is the

object selection, and the black block is your minimap. The yellow block on the minimap is your viewport. The size of your screen, and whether you are in windowed or full screen mode, will affect this, so yours may be completely yellow. (I made it smaller to get a legible screenshot).

To start, click on the image of a rock in the top-right, and the grey area will fill in with objects. Click and drag one of the objects into the magenta area. You will notice a block pop up in the bottom-left. This block controls the object you just placed down. It is not intuitive, so you need to take it for a test run.



The vertical bar changes the facing of the object on the horizontal plane. Think of it as

flipping around a vertical axis in the centre of the object. The double-dash next to it does the opposite, flipping your object around the horizontal axis. The shortcut key is "F" for flip. The next two buttons, "<->" and "->", rotate the object clockwise or counter-clockwise around the anchor point in the top-left of the object – not the centre, like the previous two buttons. The shortcut key is "R" for rotate.

There is a "help" button on the menu bar, but it does not cover

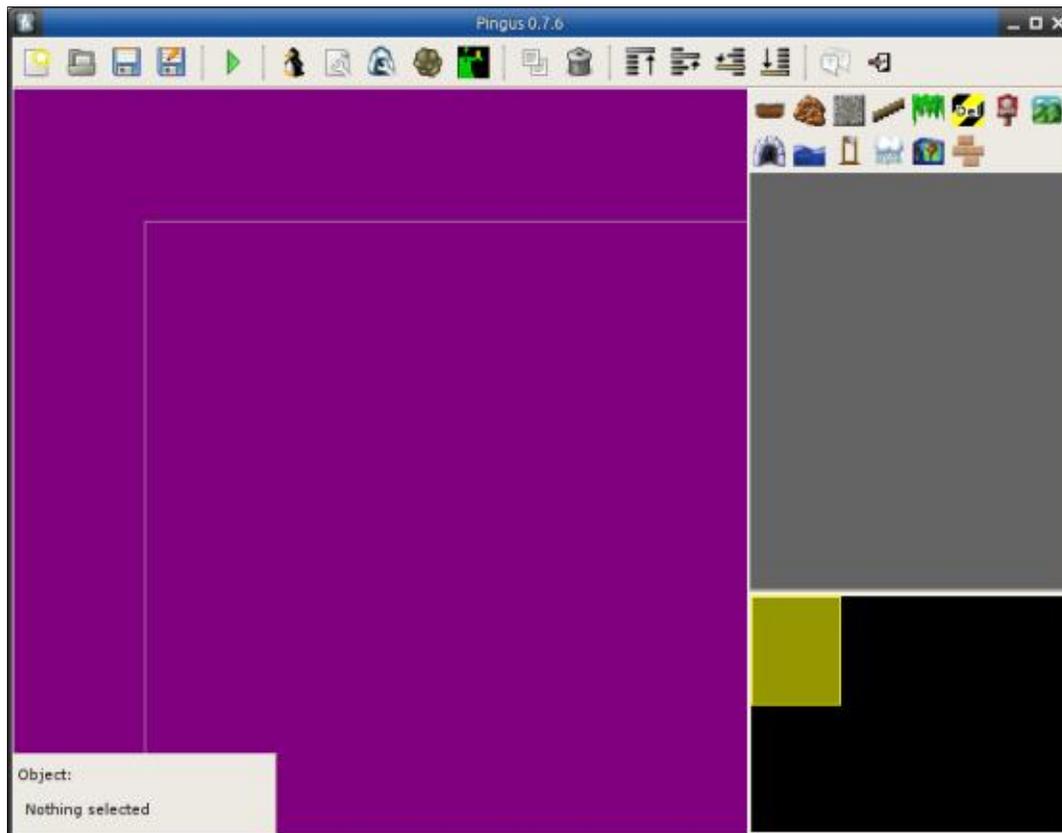
everything; use it as a reference. The first unlisted button you need to know is "D" for duplicate. I suppose you can keep dragging floor pieces from the menu, but duplicating them in the correct angle is a lot quicker. You can also select multiple objects with a click and drag, and, once selected (Border will change from white to red), you can mass duplicate that. You can make this as simple or intricate as you like. One basically needs three things for a level, an Entrance, a floor, and an exit. We

placed a floor, now drag in an Entrance and Exit, and place them where you would like. The green triangle in the menu is the play button, this will let you test your level.

Once you know the level is working, it is time to decorate your level. What you are looking for is the grass-looking icon. Hovering over it, the tool-tip should say "groundpiece (transparent)". These are decorators your penguins will not interact with whilst walking. These decorators will still be acted upon by things like explosions or digging through them, so you don't have to worry about stray grass hanging in the air once your digger starts to dig. The pieces that do

interact with your penguins have "(solid)" in parenthesis when you hover your mouse pointer over them. The main point I am trying to make is that you should try everything to see how your penguins react to them.

You can simply drag out a background tile to anywhere on the magenta block. The game engine will take care of the tiling for you. I will include screenshots of this below. Keep the size of your penguins in mind, there are big blocks, meant to be borders or for them to dig through, and simple floors for them to walk on. As you can see, I used fat blocks so that they have a way to fall before reaching the lava. Right, you have



the bare bones down. Now the difficult part starts, you need to make puzzles. Puzzles do not have to be terrain-based only, you can get creative and limit the types of penguins that are spawned. You do this by clicking on the penguin icon in the menu bar. The tool-tip says "configure actions". You have ten types of penguins, and, by default, you get twenty of each. For early levels the defaults are fine, but working on your puzzle, you will

need to ramp up the difficulty by limiting the types as the game progresses, or the player will lose interest. It is a good idea to save often. I have killed my level four times during this how-to, by accident.

If you are stumped at level design or puzzle design, steal with your eyes. Look here: <https://www.youtube.com/watch?v=6tQHKbCxngQ>

The last thing I want to cover is something you may have seen in the beginning, but I did not mention it. That is the z-axis; you can think of this as layers; foreground, middle ground, and background. This gives depth to your level. The reason I left it until last was because, on the first glance, it does nothing. If you selected that first object and tried to raise or lower it, nothing would

have happened. To understand how it works, I need you to place one type of ground, then place a "groundpiece" (solid) overlapping the ground. Now play with the four icons after the bin icon to see what happens. Now also look at the box in the lower-left that gives you the object properties. The z-axis stays at 0, even if you lower the object. However, even at the lowest setting, the object does not go lower than the background. You can use this to your advantage by having liquid above the ground on the Z-axis, and pretend it is floating on lava or water.

As always, questions and comments to: [misc@fullcirclemagazine.org](mailto:misc@fullcirclemagazine.org)



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



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

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

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