



Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

ISSUE #175 - November 2021



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WEBDAV START YOUR OWN HOME SERVER

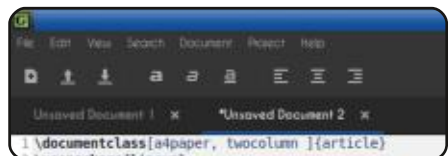
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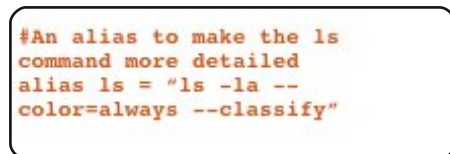


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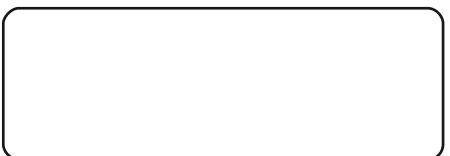
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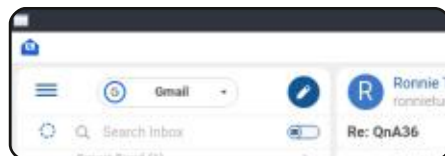
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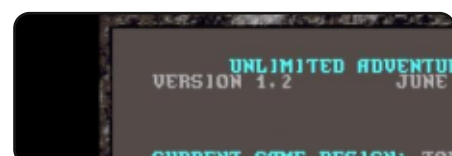
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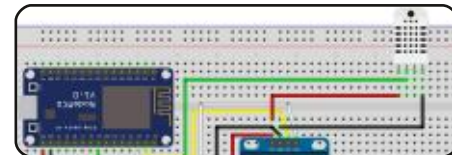
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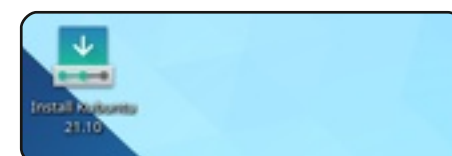
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WELCOME TO THE LATEST ISSUE OF FULL CIRCLE

Once again we have the usual Python, Inkscape, Latex, and Micro articles. Filling the third HowTo space we have an interesting article on setting up your own WebDAV server.

Elsewhere, we have more Everyday Ubuntu retro goodness, a review of Bluemail, and continuing our look at the 21.10 series; we have Kubuntu 21.10.

Erik is taking Command & Conquer back to basics with a look at ye olde terminal commands. And, of course, his regular Q&A column.

As well as a game review, we have a quick look at what's new in Ubports Touch OTA-20. It's still based on the old 16.xx series Ubuntu, but I hear they're working hard to get it shifted to something more modern. Watch this space!

Don't forget: if you're looking for some help, advice, or just a chit chat: remember, we have a **Telegram** group. I mention this as I've been giving out the wrong link in a couple of emails. The (new and updated) link is: <https://t.me/joinchat/24ec1oMFO1ZjZDc0>. I hope to see you there. Come and say hello.

Anyway, stay safe, and all the best for 2021!

Ronnie

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MUEN 1.0, AN OPEN SOURCE MICROKERNEL:

10/25/2021

After eight years of development, the Muen 1.0 Separation kernel was released. The absence of errors in the source code was confirmed using mathematical methods of formal verification of reliability. The kernel is available for the x86_64 architecture and can be used in mission-critical systems that require an increased level of reliability and guarantee that there are no failures. The source of the project are written in the Ada language and its verifiable dialect SPARK 2014 . The code is distributed under the GPLv3 license.

<https://groups.google.com/g/muen-dev/c/mzd5E6Llomw>

OPENLDAP 2.6.0 RELEASED:

10/26/2021

The OpenLDAP 2.6.0 package has been released, offering a multi-platform implementation of the Lightweight Directory Access Protocol (LDAP) for organizing and accessing directory services. The project is developing a modular server part that supports various storage and data access backends, a proxy balancer, client utilities and libraries. The code is written in C and is distributed under the BSD-like OpenLDAP Public License.

<https://www.openldap.org/software/release/announce.html>

LAUNCH OF NCSPOT, A CONSOLE SPOTIFY CLIENT:

10/26/2021

There was a release ncspot 0.9 , a lightweight console client for the music service Spotif, written in Rust. The interface is skinnable and developed using the ncurses library.

By default, PulseAudio is used as the sound server (compilation flags must be specified to use an alternative sound backend). Source code is distributed under BSD license.

According to the developer, this client compares favorably with the official and alternative clients by a wider coverage of operating systems (in particular, * BSD systems are supported), significantly lower resource consumption (RAM consumption is more than 20 times lower, 46.2 MiB instead of 1000.0 MiB), as well as the increased stability of the work provided by the use of the Rust language.

<https://github.com/hrkfdn/ncspot/releases/tag/v0.9.0>

VULKAN 1.1 GRAPHICS API CERTIFIED FOR RASPBERRY PI 4:

10/26/2021

Raspberry Pi developers announced a certification by Khronos - v3dv graphics driver that has successfully passed more than 100 thousand tests from a set of CTS (Kronos Conformance Test Suite) and is recognized as fully compliant with the specification Vulkan 1.1 .

The driver is certified using the Broadcom BCM2711 chip used in the Raspberry Pi 4, Raspberry Pi 400 and Compute Module 4 boards. Verification was performed on a Raspberry Pi 4 board with a Raspberry Pi OS distribution based on Linux kernel 5.10.63, Mesa 21.3.0 and X-server. Obtaining the certification allows you to officially declare compatibility with graphics standards and use the associated Khronos trademarks.

<https://www.raspberrypi.com/news/vulkan-update-version-1-1-conformance-for-raspberry-pi-4/>

CRABZ 0.7, MULTITHREADED COMPRESSION UTILITY:

10/27/2021

Crabz implements multi-threaded data compression and decompression, similar to the pigz utility. Both of these utilities are multi-threaded versions of gzip that are optimized to run on multi-core systems. Crabz itself differs in that it is written in the Rust programming language, in contrast to the pigz utility written in C/C++, and demonstrates a performance gain, in some cases reaching 50% (when using an alternative backend).

The developer page has a detailed comparison of the speed of both utilities with different keys and used backends. The measurements were made on a 1.5 gigabyte csv file using a PC based on AMD Ryzen 9 3950X 16-Core Processor and 64 GB DDR4 RAM and on the Ubuntu 20 operating system as a test bench.

<https://github.com/sstadick/crabz>

X.ORG SERVER 21.1 AVAILABLE:

10/27/2021

After three and a half years since the last major release of X.Org Server 21.1 there is a new version. Starting with the presented branch, a new issue numbering scheme has been put into operation, allowing you to immediately see how long ago this or that version was published. By analogy with the Mesa project, the first number of the version reflects the year, the second number indicates the serial number of the major release for the year, and the third number is used to flag corrective updates.

<https://www.mail-archive.com/xorg@lists.x.org/msg06880.html>

TRISQUEL GNU / LINUX 9.0.1:

28.10.2021

A year after the last release, an update has been published for the completely free Linux distribution Trisquel 9.0.1. It is based on Ubuntu 18.04 LTS and aimed at small businesses,

educational institutions and home users. Trisquel is personally endorsed by Richard Stallman and is officially recognized as completely free by the Free Software Foundation, and is listed as a recommended distribution by the Free Software Foundation. Installation images are available for download in sizes 2.6 GB, 2 GB and 1.1 GB (x86_64, i686). The release of updates for the distribution will be carried out until April 2023.

In the new release, the installation images have been updated and the new versions of the fix packages from the Ubuntu 18.04 LTS branch have been ported. The Abrowser browser (Firefox with patches) has been updated to version 93. The installation builds solved the problem with access to repositories and updates due to the delivery in the ca-certificates package of the outdated IdenTrust root certificate, which was used to cross-sign the Let's Encrypt CA root certificate. They updated the completely free version of the Linux kernel - Linux Libre, in which additional cleaning of proprietary firmware and drivers containing non-free components was carried out.

<https://trisquel.info/en/release-announcement-trisquel-901-etiona-security-update>

NEW VERSION OF CYGWIN 3.3.0:

10/28/2021

Red Hat has published a stable release of Cygwin 3.3.0, which includes a DLL for emulating the basic Linux API on Windows, allowing you to build Linux-specific programs with minimal changes. The package also includes standard Unix utilities, server applications, compilers, libraries and header files directly assembled for execution on Windows.

Cygwin 3.3.0 will be the last release to support Windows Vista, Windows Server 2008, and 32-bit installations, while Cygwin 3.4.0 will be the last release to support Windows 7, Windows Server 2008 R2, Windows 8, and Windows Server 2012. On branches after this, Cygwin will only support systems starting with Windows 8.1 and Windows Server 2012 R2.

<https://www.mail-archive.com/cygwin-announce@cygwin.com/msg09893.html>

SNIFFGLUE TRAFFIC ANALYZER 0.14.0 RELEASED:

30.10.2021

The sniffglue 0.14.0 network analyzer has been released, which analyzes traffic in passive mode and uses multithreading to distribute packet parsing work across all processor cores. The project is aimed at safe and reliable operation when intercepting packets in untrustworthy networks, as well as displaying the most useful information in the default configuration. The product code is written in Rust and is distributed under the GPLv3 + license.

An interesting feature of sniffglue is the use of the seccomp mechanism for additional protection, which prevents a

compromised process from using those system calls that are clearly not needed for its work. In addition, before running the utility, you need to set up a directory for chroot and an unprivileged account, on behalf of which, the sniffer will be launched. The program supports ethernet, ipv4, ipv6, arp, tcp, udp, icmp, http, tls, dns, dhcp, ssdp, ppp and 802.11 protocols.

The new version marks several corrective changes, adding SLL support for PPP, providing seccomp with access to the getpid system call, and publishing the installation instructions in the Guix distribution.

<https://github.com/kpcyrd/sniffglue>

TERMINATION OF TRIDENT DEVELOPMENT:

10/30/2021

The termination of development of the custom Trident distribution, originally developed on FreeBSD and TrueOS (PC-BSD), but two years ago transferred to the Void Linux package base, was announced. The distribution used the ZFS file system and the OpenRC init system. The decision to phase it out, was made by key developers, whose life circumstances have changed recently, as have personal preferences. The gradual decommissioning of infrastructure elements will begin on November 1 and will end on March 1, 2022, when the project site will be stopped and the package repository is disabled.

https://project-trident.org/post/2021-10-29_sunset/

APACHE OPENMEETINGS 6.2 AVAILABLE:

31.10.2021

The Apache Software Foundation presented the 'web-conferencing server' release of Apache OpenMeetings 6.2, allowing you to organize audio and video conferencing via the Web, as well as the collaboration and the exchange of messages between the parties. Both webinars with one speaker and conferences with an arbitrary number of participants interacting with each other are supported. The project code is written in Java and distributed under the Apache 2.0 license.

Additional features include: tools for integrating with a calendar-scheduler, sending individual or broadcast notifications and invitations, sharing files and documents, maintaining the address book of participants, keeping an event protocol, jointly scheduling tasks, broadcasting the output of running applications



DistroWatch.com

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(screencast demonstration), and conducting polls.

<https://blogs.apache.org/openmeetings/entry/openmeetings-v6-2-0-openapi>

VAULTWARDEN 1.23,

RELEASED:

11/01/2021

The Vaultwarden 1.23.0 project (former bitwarden_rs) has been released. They developing an alternative server side for the Bitwarden password manager, API-compatible and able to work with official Bitwarden clients. The goal of the project is to provide a cross-platform implementation that allows you to run Bitwarden servers at your own facilities, but unlike the official Bitwarden server, they consume significantly less resources.

The Vaultwarden project code is written in Rust and is licensed under the GPLv3.0 license. PostgreSQL, SQLite and MySQL are supported as DBMS. For comparison, the official Bitwarden server is written in C# using .NET Core, ASP.NET Core, tied to MS SQL Server and supplied under the

AGPLv3.0 license, which does not allow creating services without opening their code.

<https://github.com/dani-garcia/vaultwarden>

BLENDER COMMUNITY RELEASES SPRITE FRIGHT ANIMATED MOVIE:

11/01/2021

The Blender Project has unveiled a new animated short, "Sprite Fright", a Halloween-themed 80's horror comedy movie. The project was led by Matthew Luhn, known for his work at Pixar Studios.

The film was created using only open working tools for modeling, animation, rendering, compositing, motion tracking and video editing. The project acted as a test base for honing new capabilities and technologies for creating modern visual effects developed in the new Blender branches. This is the thirteenth animation project of the Blender community.

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

NEW RELEASE OF ANTiX 21:

11/01/2021

A new release of the lightweight Live-distribution AntiX 21, optimized for installation on outdated hardware, was announced. The release is based on Debian 11, but comes without the systemd system manager and with eudev instead of udev. You can choose to use runit or sysvinit for initialization. The default user environment is created using the IceWM window manager. ZzzFM and ROX-Filer file managers are available.

The new release includes Linux kernels 4.9.0-279 with fbcondecor splash and 5.10.57 (x64 full only), LibreOffice 7.0.4-4, Firefox-esr 78.14.0esr-1 in antiX-full, Seamonkey 2.53. 9.1 in antiX-base, Claws-mail 3.17.8-1, CUPS for print, XMMS for listening to music, Celluloid and mpv for playing videos, SMTube for playing YouTube videos without a browser, Streamlight-antix for streaming videos with very low RAM usage, Qpdfview is a PDF reader.

<https://antixlinux.com/antix-21-grup-yorum-released/>

RELEASE OF MPV 0.34:

02.11.2021

After 11 months of development, the open-source video player MPV 0.34 was released, which in 2013 forked from the code of the MPlayer2 project. MPV focuses on developing new features and ensuring that innovations are continually brought from the MPlayer repositories without worrying about maintaining compatibility with MPlayer. The MPV code is licensed under the LGPLv2.1 + license, some parts remain under the GPLv2, but the migration to the LGPL is almost complete and the "--enable-lgpl" option can be used to disable the remaining GPL code.

<http://mpv.io/>

FEDORA LINUX 35 DISTRIBUTION RELEASED:

02.11.2021

Prepared for download are Fedora Workstation, Fedora Server, CoreOS, Fedora IoT Edition, as well as a set of "spins" with Live-assemblies of desktop

environments KDE Plasma 5, Xfce, i3, MATE, Cinnamon, LXDE and LXQt. It is available for x86_64, Power64, ARM64 (AArch64) architectures and various devices with 32-bit ARM processors. The release of Fedora Silverblue builds is delayed.

<https://fedoramagazine.org/announcing-fedora-35/>

OPENSUSE LEAP 15.3-2 FIRST QUARTERLY UPDATE AVAILABLE:

02.11.2021

The openSUSE project has published the first update to the installation images for the openSUSE Leap 15.3 QU1 distribution (15.3 Quarterly Update 1 or 15.3-2). The proposed builds include all package updates that have accumulated four months after the release of openSUSE Leap 15.3, and also fix the installer bugs. Systems installed earlier and kept up to date received updates through the standard update installation system.

In the future, distribution updates are planned to be

published once a quarter. It is expected that the publication of additional quarterly updates will reduce the amount of data downloaded.

<https://news.opensuse.org/2021/11/02/leaps-first-quarterly-update-is-released/>

CANONICAL UNVEILS INTEL- OPTIMIZED UBUNTU BUILDS:

03.11.2021

Canonical announced the beginning of separate system images of Ubuntu Core 20 and Ubuntu Desktop 20.04, optimized for 11th generation Intel Core processors (Tiger Lake, Rocket Lake), Intel Atom X6000E chips and N and J series Intel Celeron and Intel Pentium. The reason for creating separate images is the desire to improve the efficiency of using Ubuntu in Internet of Things (IoT) systems based on Intel chips.

<https://ubuntu.com//blog/ubuntu-optimised-for-intel-processors-accelerates-adoption-of-iot-innovations>

RELEASE OF ASTERISK 19 COMMUNICATION PLATFORM AND FREEPBX 16 DISTRIBUTION

03.11.2021

After a year of development, a new stable branch of the open communication platform Asterisk 19 was released, which is used for deploying software PBXs, voice communication systems, VoIP gateways, organizing IVR systems (voice menu), voice mail, telephone conferences and call centers. The source code of the project is available under the GPLv2 license.

Asterisk 19 article listed in the category of issues with the usual support, updates, which are available for two years. Support for the past LTS branch Asterisk 18 will last until October 2025, and Asterisk branch 16, until October 2023. LTS branch 13.x and intermediate branch 17.x are no longer supported. LTS releases focus on stability and performance optimization, while regular releases prioritize functionality enhancements.

Simultaneously, after three

years of development, the release of the FreePBX 16 project was published, which develops a web interface for managing Asterisk and a ready-made distribution kit for rapid deployment of VoIP systems. The changes noted support for PHP 7.4, API extension based on the GraphQL query language, transition to a single PJSIP driver (the Chan_SIP driver is disabled by default), support for creating templates to change the design of the user control panel, a redesigned firewall module with advanced capabilities for managing SIP- traffic, the ability to configure protocol parameters for HTTPS, binding AMI only to localhost by default, an option to check the strength of passwords.

<https://www.asterisk.org/asterisk-news/asterisk-19-0-0-now-available/>

RED HAT ENTERPRISE LINUX 9 BETA TESTING BEGINS:

03.11.2021

Red Hat has announced the first beta of Red Hat Enterprise Linux 9. Ready- to-use installation images have been prepared for

registered users of Red Hat Customer Portal (CentOS Stream 9 iso images can also be used to evaluate functionality). Package repositories are available without restriction for x86_64, s390x (IBM System z), ppc64le, and Aarch64 (ARM64) architectures. The sources for the Red Hat Enterprise Linux 9 rpm packages are located in the CentOS Git repository. The release is expected in the first half of next year. In line with a 10-year support cycle the RHEL 9 distribution will be maintained until 2032. Updates for RHEL 7 will continue to be released until June 30, 2024, and RHEL 8 until May 31, 2029.

<https://www.redhat.com/en/blog/red-hat-enterprise-linux-85-beta-now-available>

CLAMAV 0.104.1 UPDATE: 11/04/2021

Cisco has released a new free ClamAV antivirus package 0.104.1 and 0.103.4 . Recall that the project passed into the hands of Cisco in 2013 after the purchase of Sourcefire, which develops ClamAV and Snort. The project code is distributed under the GPLv2 license.

<https://blog.clamav.net/2021/11/clamav-01034-and-01041-patch-releases.html>

OPEN SOURCE LUAU, A TYPE-CHECKING VARIANT OF LUA: 04.11.2021

Roblox announced and published the first standalone release of the Luau programming language, continuing the development of Lua and backward compatible with Lua 5.1. The Luau language is designed primarily for embedding scripting engines into applications and aims to achieve high performance and low resource consumption. The project code is written in C++ and is open under the MIT license.

Luau extends Lua with type checking capabilities and some new syntax such as string literals. The language is backward compatible with Lua 5.1 and partially with newer versions. The Lua Runtime API is supported, which allows you to use Luau with pre-existing code and bindings. The language runtime is based on a heavily revised Lua runtime 5.1 code, but the interpreter has been completely rewritten. During the development,

some new optimization techniques were used, which allowed it to achieve higher performance compared to Lua.

The project was developed by Roblox and is used in the code of the gaming platform, games, and custom applications of this company, including the Roblox Studio editor. Initially, Luau was developed behind closed doors, but in the end it was decided to transfer it to the category of open projects for further joint development with the participation of the community.

<https://luau-lang.org/2021/11/03/luau-goes-open-source.html>

RELEASE OF TIXATI 2.86: 11/05/2021

The free proprietary torrent client Tixati 2.86, available for Windows and Linux, has been released. Tixati is notable for giving the user more control over torrents over memory consumption, comparable to clients such as µTorrent and Halite. The Linux version uses a GTK2 based interface .

<https://update-check.tixati.com/checkver/2.85.1/>

LXQT 1.0 GRAPHICS ENVIRONMENT RELEASED: 11/05/2021

After six months of development, the LXQt 1.0 user environment (Qt Lightweight Desktop Environment) was released, developed by the joint development team of the LXDE and Razor-qt projects. The LXQt interface continues to follow the classic desktop organization, bringing a modern look and feel to enhance the user experience. LXQt is positioned as a lightweight, modular, fast and convenient continuation of the development of the Razor-qt and LXDE desktops, incorporating the best features of both shells. The code is hosted on GitHub and licensed under GPL 2.0+ and LGPL 2.1+. Ready builds are expected for Ubuntu (LXQt is offered by default in Lubuntu), Arch Linux , Fedora , openSUSE , Mageia , FreeBSD , ROSA and ALT Linux .

<https://github.com/lxqt/lxqt/releases/tag/1.0.0>

TAILS 4.24 DISTRIBUTION

RELEASED:

06.11.2021

The release of the specialized distribution Tails 4.24 (The Amnesic Incognito Live System), based on Debian and designed to provide anonymous access to the internet, has been published. Anonymous logging into Tails is provided by the Tor system. All connections, except for traffic through the Tor network, are blocked by the packet filter by default. Encryption is used to store user data in the save user data mode between runs. A 1.1 GB iso-image capable of working in Live mode has been prepared for download.

In the new version, we switched to the Tor Browser 11 browser branch, the stable release has not yet been formed (instead of the expected stable release of Browser 11.0, another test release of Tor Browser 11.0a10 was published, based on Firefox 91.3 ESR and the alpha version of Tor 0.4.7.2).

https://tails.boum.org/news/version_4.24/index.en.html

CRYPTOGRAPHIC LIBRARY WOLFSSL 5.0.0 RELEASED:

11/07/2021

A new release of the wolfSSL 5.0.0 compact cryptographic library is now available, optimized for use on embedded devices with limited processor and memory resources, such as IoT devices, smart home systems, automotive information systems, routers and mobile phones. The code is written in C and is distributed under the GPLv2 license.

The library provides high-performance implementations of modern cryptoalgorithms, including ChaCha20, Curve25519, NTRU, RSA, Blake2b, TLS 1.0-1.3 and DTLS 1.2, which, according to the developers, are 20 times smaller than the OpenSSL implementations. Both its simplified API and a layer for compatibility with the OpenSSL API are provided. There is support for OCSP (Online Certificate Status Protocol) and CRL (Certificate Revocation List) for checking certificate revocation.

<https://github.com/wolfSSL/wolfssl/releases/tag/v5.0.0-stable>

RELEASE OF SNOOP 1.3.1:

11/07/2021

The release of Project Snoop 1.3.1, an OSINT forensic tool that searches for user accounts in public data, has been released. The program analyzes various sites, forums and social networks for the presence of the desired username, i.e. allows you to determine on which sites there is a user with the specified nickname. The project was developed off research work in the field of public data scraping.

The code is written in Python and is licensed under a limited personal use license. At the same time, the project is a fork of the code base of the Sherlock project, supplied under the MIT license (the fork was created due to the inability to expand the base of sites).

<https://github.com/snooppr/snoop/releases>

SYSTEM76 IS CREATING A NEW USER ENVIRONMENT:

11/08/2021

Michael Aaron Murphy, development leader for the Pop!_OS distribution and contributor to the Redox operating system, has confirmed that System76 is developing a new non-GNOME Shell desktop environment written in Rust. System76 intends to completely move away from building its user environment based on the GNOME Shell and develop a new desktop using the Rust language in development. It should be noted that System76 has extensive experience in Rust development. The company employs Soller Jeremy, founder of the operating system Redox, GUI Orbital and toolkit OrbTk, written in Rust. Pop!_OS already ships with Rust components such as an update manager, a power management system, a firmware management toolkit, service for launching programs, installer, settings widget and configurators.

https://old.reddit.com/r/pop_os/comments/qnvrou/will_pop_os_ever_do_an_officially_kde_flavor_or/hjji8hh/

RAV1E 0.5, AV1 ENCODER, RELEASED:

08.11.2021

Rav1e 0.5.0, an encoder for AV1 video encoding format, was released. The product is being developed by the Mozilla and Xiph communities and differs from the libaom reference implementation written in C / C++ in terms of increased coding speed and increased attention to security (compression efficiency is still lagging behind). The product is written partly in Rust with assembly optimizations (72.2% - assembler, 27.5% - Rust), the code is distributed under the BSD license. Ready builds are prepared for Windows and macOS (Linux builds were temporarily skipped due to continuous integration issues).

Rav1e supports all major AV1 features, including support for intra- and inter-coded frames (intra and inter frames), 64x64 superblocks, 4: 2: 0, 4: 2: 2 and 4: 4: 4, 8 color subsampling -, 10- and 12-bit color depth coding, RDO (Rate-distortion optimization) distortion optimization, various modes of

predicting interframe changes and detecting transformations, flow rate control and scene truncation detection.

The AV1 format is noticeably ahead of H.264 and VP9 in terms of compression capabilities, but due to the complexity of the algorithms that implement them, it takes significantly more time for encoding (in terms of encoding speed, libaom lags behind libvpx-vp9 by hundreds of times, and thousands of times behind x264). The rav1e encoder provides 11 performance levels, the highest of which achieve speeds close to real-time encoding. The encoder is available both as a command line utility and as a library.

<https://github.com/xiph/rav1e/releases/tag/v0.5.0>

GODOT 3.4 RELEASED:

08.11.2021

After 6 months of development, the free Godot 3.4 game engine has been released, suitable for creating 2D and 3D games. The engine supports an easy-to-learn language for defining game logic, a

graphical environment for designing games, a one-click game deployment system, extensive animation and physics simulation capabilities, a built-in debugger and a system for identifying performance bottlenecks. The game engine code, game design environment and related development tools (physics engine, sound server, 2D / 3D rendering backends, etc.) are distributed under the MIT license.

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

NEW RELEASE OF RASPBERRY PI OS DISTRIBUTION:

09.11.2021

The developers of the Raspberry Pi project have published an autumn update for the Raspberry Pi OS (Raspbian) distribution based on Debian. Three builds are prepared for download - a reduced (463 MB) for server systems, with a desktop (1.1 GB) and a complete one with an additional set of applications (3 GB). The distribution comes with a custom PIXEL environment (a fork of LXDE). About 35 thousand packages are available for

installation from the repositories .

<https://www.raspberrypi.com/news/raspberry-pi-os-debian-bullseye/>

RELEASE OF AN ALTERNATIVE BUILD OF KCHMVIEWER:

10.11.2021

An alternate release of KchmViewer 8.1, a chm and epub file viewer, is available. The alternative fork is distinguished by the inclusion of some enhancements that did not make it and most likely will not make it to the upstream. The KchmViewer program is written in C++ using the Qt library and is distributed under the GPLv3 license.

<https://github.com/u-235/kchmviewer/releases/tag/v8.1-rc>

RELEASE OF THE TURN-BASED GAME RUSTED RUINS 0.11:

11.11.2021

Rusted Ruins 0.11, cross-platform roguelike computer game was released. The game uses pixel art and typical Rogue-like

interaction mechanisms. According to the plot, the player finds himself on an unknown continent, filled with the ruins of a ceased civilization, and collecting artifacts and fighting enemies, bit by bit, collects information about the secret of the lost civilization. The code is distributed under the GPLv3 license. Ready packages are generated for Linux (DEB) and Windows.

<https://github.com/garkimasera/rusted-ruins/releases>

RELEASE OF NEBULA 1.5, A SYSTEM FOR CREATING OVERLAY P2P NETWORKS:

12.11.2021

The Nebula 1.5 project is available, which offers tools for building secure overlay networks that can combine from several to tens of thousands of geographically separated hosts, forming a separate isolated network on top of the global network. The project is designed to create your own overlay networks for any needs, for example, to combine corporate computers in different offices, servers in different data centers or

virtual environments from different cloud providers. The code is written in Go and is licensed under the MIT license. The project was founded by Slack, which develops the corporate messenger of the same name. Supports Linux, FreeBSD, macOS, Windows, iOS and Android.

<https://github.com/slackhq/nebula/releases/tag/v1.5.0>

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



COMMAND & CONQUER

Written by Erik

Starting this issue, I thought we could focus on terminal commands and conquer those. Most of us don't think twice when typing at a terminal, it's just there. What is actually happening is that you are typing commands into a shell that is interpreting your commands. By default, Ubuntu ships with bash, but you can install another if you like. I will focus on bash. The reason being, that if you ever get to use servers or containers on the internet, chances are good that it is bash.

For this command and conquer, I

want you to keep this page open in your browser: https://www.gnu.org/software/bash/manual/html_node/Tilde-Expansion.html

I will not waste your time with the history of shells, the internet is full of that, so let's jump to the meat and potatoes. If you are reading this and your distribution does not have bash by default, like my new work Mac, then use 'chsh' (aka. change shell) to change it to '/bin/bash'. Now log out and in for the changes to take effect.

I have to quickly mention that a

terminal emulator is not a terminal emulator is not a terminal emulator, though they may look the same.

The quickest way to see any difference is to right click on your terminal and peruse the menu (see bottom left image). My XFCE terminal can have a menu bar and tool bar, but I hide those. So pick one you like and join in the fun.

Everyone is familiar with the cd command and it's quirky use of cd~. We will expand on that and start with the ~ (tilde) as it is a built in shell command that points to \$HOME. This means you can use it to go to other user's home folders, for example **cd ~root**, so the syntax is: **cd ~<username>** (this will not work for root if your distribution does not have a root user, nor will it work for users that have not yet signed in.)

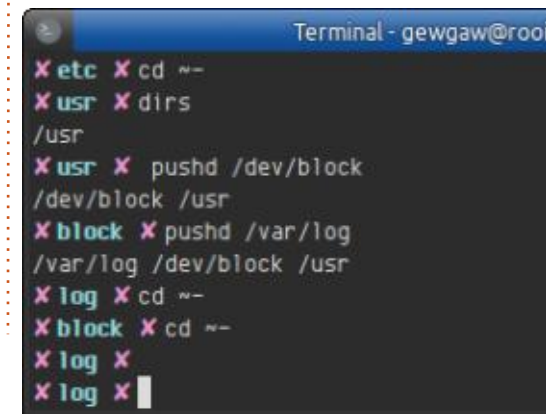
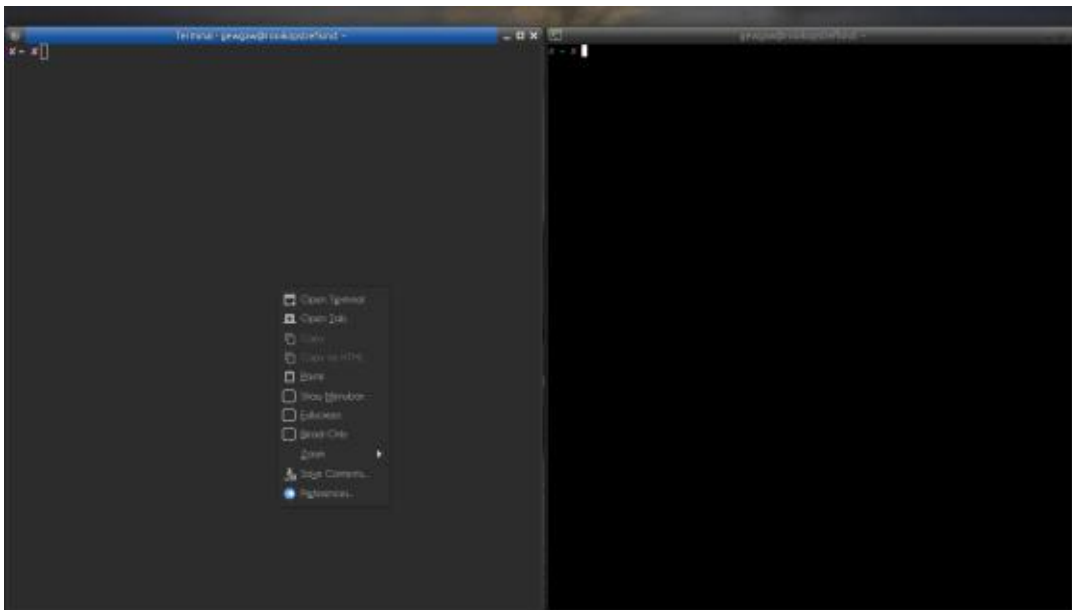
Now lets have some fun, type: **cd /usr** Then type: **cd /var** Now type: **cd ~** So we just went full circle, wink wink. Now type: **cd ~-**, to see where you are, type **pwd** or **dirs**. (if your prompt does not show

you)

Can you figure out what happened? Do it again... What happened? If you have not realised, do it four times.

Let's have some fun with this. Now because the values our command is reading are stored in a variable, \$OLDPWD, we are just retrieving it. So can we change it?

A quick visualization exercise. Imagine the towers of Hanoi, the game. You have three pegs that you have to move rings from the first to the last. Imagine the stack to be one of those pegs. To get to the second ring, you need to remove the first. This is how the stack on a computer works, like one of the



pegs. Though the directory stack that we are going to use has some short-cuts. The commands to put stuff onto the peg and remove stuff are: `pushd` and `popd` (You may have heard of `push` and `pop` in programming) So now we push a directory or two onto the stack: **`pushd /dev/block`** and again: **`pushd /var/apt`** and type '**`dirs`**' to see what you did. Now type: **`cd ~-`** What happened? Do it again (**`cd ~-`**).

Did it go as expected or not? Just like the '.' and the '..' we see in directories, that can be used in other ways, these values we just pushed onto the stack can be used in other ways too. I have 3 saved paths as you can see, they will be in position 0, 1 and 2. Computers start counting at 0 as a rule of thumb. (There are exceptions)

To see what you have, type: **`echo ~0`** and: **`echo ~1`** -Do you see that they count up from left to right?

Now lets use `popd` to remove one of the paths in the list. Here I will explain a bit how the directory stack differs from the stack inside your CPU. The stack in your CPU works on a last in, first out basis,

think towers of Hanoi. Lots of stacks do, but the directory stack, we can reach in and remove, say, the second value. Type: **`popd +1`** and then type: **`dirs`** to see what you have. So `popd` reached over position 0 and removed the second path. You could have said `popd +2`, basically `popd +n-th position`, assuming it exists.

Another way to think about this is when you type `pwd`. Print working directory. You can think of these lists of paths as working directories. We used `cd ~-` to move to the previous working directory. Now I want you to use `cd ~+` to move to the next working directory.

Okay, now you should have a better understanding , because you were hands-on. Now feel free to go read that page I had you keep open for reference, in the beginning and see if you understand it better.

I hope you learned something this issue.

As always, direct any comments or complaints to:
misc@fullcirclemagazine.org



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



HOW-TO

Written by Greg Walters

Python In The REAL World Pt.123

A few weeks ago, one of my Python newsfeeds alerted me about a neat new project – one that creates a still video image that is downloaded from NASA (National Aeronautics and Space Administration) every 45 seconds or so and displays it in the application's GUI window.

I thought that was a neat idea, so I jumped to the website and started reading. It seems that the author decided to use PySimpleGUI to make the GUI form, which is a program that I'm not really familiar with. I took a look at his screenshot of the GUI and I thought that I could create a comparable version using PAGE. I took up the challenge and thought that it would be a good project to present here. So I present my version of Spacestills.py.

The author's blog is at <https://blog.paoloamoroso.com/2021/04/a-nasa-tv-still-frame-viewer-in-python.html>, and is nicely presented. His source code can be found at <https://github.com/pamoroso/spacestills>.

We'll be using two external Python libraries. You might already have them. They are requests and PIL (pillow). If you don't have them, you can use pip to install them. They have to be on your system before you try to run the project.

Here is what my version of his project looks like during a running session.



I decided to make a little bit more space between the rows of user accessible widgets, since my mousing hand has a tendency to shake a bit. We'll start to create the GUI in PAGE.

Just in case you don't have PAGE, you can get it at <https://sourceforge.net/projects/page/>. The installation details are in the documentation or in various past Full Circle articles of mine. You should use Python 3.6 or higher, since I use f-strings for some of the print statements.

Let's look at some of the requirements that we need to keep in mind during the design process. The images that come in from the Internet will be 704x480 pixels. The shortest time between the images is 45 seconds. This information came from the author's blog page as well as his code (his blog page states the image size is 704x408, but the actual image and his code is 704x480). The only code of his that I used are a few of his constants. The rest of the code for this project is code that I have used in previous projects. His project allows the end user to select the time between requests to be between 45 seconds and 300 seconds. He also allows the ability to change the aspect ratio from 704x480 to a 16x9 format which means that the image will be

resized to 704x396 before it is displayed and/or saved. There is a Checkbutton that allows for this resize to be performed. The author has a Save button that allows the image to be saved to the hard drive, as well as a Reload button. This is helpful if you change between the native image size to the 16x9 format (or if you are impatient and don't want to wait for the next refresh to occur). He also provides a Checkbutton to change the delay time between requests, and a text entry widget (and a button) to set the new time. I decided to use a Tk::Spinbox to make the time selection easier and doesn't require the Set button. I do, however, include the set button, but all it does is bring up a warning Message box. The reason that I decided to use the Spinbox is that if you use the Up/Down arrows on the Spinbox, you don't have to check if the value is numeric, keeping the code simpler.

So start up PAGE, and resize the default Toplevel designer window to about 777 pixels wide and 657 high. Don't be too concerned about

the actual dimensions of the main form, just get it close. Now move the form to somewhere in the middle of your screen. Set the title attribute in the Attribute Editor to “NasaStills-tk”. While we are in the Attribute Editor, set the background color to “skyblue4”. This is a nice dark bluish gray color.

Next, we’ll put a frame widget into the Toplevel form. This will hold the Label widget that we will use to display the still image from the Nasa site. Place it near the top-left of the main form. Don’t worry too much about the placement at this point. Using the Attribute Editor again, make sure that the frame is selected, and set the width to 714 and the height to 492. Next, add a Label widget and set the X and Y position in the Attribute editor to 2 and 2. This will provide a nice little border around the Label widget when it is set to its full size. Set the width of the Label to 704, the height to 488, and the background color to “skyblue3”. This gives us a nice color for the visual inner display area. Set the Alias of the Label widget to “labelImage”, and delete the text in the text attribute.

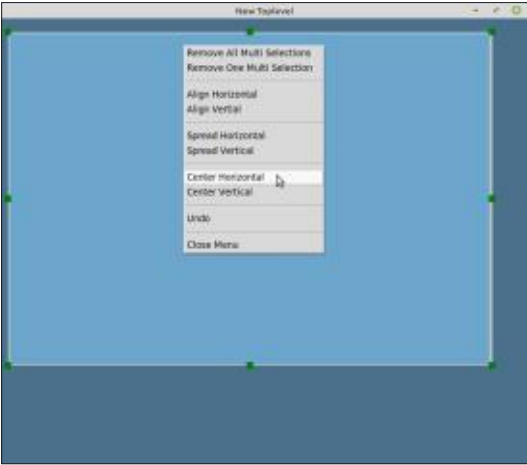
Now we will finish the

placement of the Frame and Label combo. PAGE has a feature that allows you to select multiple widgets and manipulate them as a group, like centering horizontally or vertically, equally spacing them within their parent, and so on. At this point, we want to just center the frame within the main form horizontally. In the Widget Tree, use the middle mouse button to click on the Frame: Frame1 entry.



Notice that it turns green. The black resize handles of the Frame in the main form also turn green to let you know you are in the multi-select mode. We need to select only the Frame, since it is the parent of the image label. Now right-click on the Frame/Image combo in the main form. You will see a context menu appear.

Select Center Horizontal from the menu. The Frame will now be centered in the form horizontally. Click Unselect MS in the Widget



Tree window. I set the top of my Frame to 10 pixels down from the top of the form (Y position). It’s time to save your project. Name it “NasaStills.tcl”.

Now we can start to place the rest of the widgets on our form. We’ll place the first of two Checkbuttons next. Be sure to make it a Tk Checkbutton, not a ttk Themed Checkbutton.

I’ll give you the attributes you will want to set in the grid below.

Attribute	Value
Alias	chkAspect
active bg	skyblue3
anchor	w
background	skyblue4
command	on_chkAspect
foreground	antiquewhite2
select color	skyblue4
text	Correct Aspect Ratio
variable	che47

Some information about these attributes. By setting the Active Background (active bg) and select color attributes, we control the colors when the mouse is over the widget (active bg) as well as the color when the status is Checked (select color). Setting the foreground color to antiquewhite2, the text and check area are bright enough to be seen, but not bright enough to cause the check not to show. If we were to set the foreground to full white (#ffffff), you won’t be able to tell when the check is set. Give it a try.

Save again and we’ll add three more buttons. Make sure they line up nicely in the row with the Checkbutton. The first one will be the Save button, next is the Reload button, and the last is the Exit button. You might want to sneak a peek at the image above for a reference. Here are the attributes for the Save button.

Attribute	Value
Alias	btnSave
active bg	skyblue3
background	skyblue4
command	on_btnSave
foreground	#ffffff
highlight bg	skyblue3
text	Save

Next the Reload button

Attribute	Value
Alias	btnSave
active bg	skyblue3
background	skyblue4
command	on_btnSave
foreground	#ffffff
highlight bg	skyblue3
text	Save

Attribute	Value
Alias	btnReload
active bg	skyblue3
background	skyblue4
command	on_btnReload
foreground	#ffffff
highlight bg	skyblue3
text	Reload

Finally the Exit button.

Attribute	Value
Alias	btnExit
active bg	skyblue3
background	skyblue4
command	on_btnExit
foreground	#ffffff
highlight bg	skyblue3
text	Exit

Remember to make everything line up in the row nicely, and provide a little bit of space between the bottom of the frame and the top of the buttons.

Save your project again and we'll finish up with the last three widgets. First we'll do another Tk

Checkbutton.

Attribute	Value
Alias	chkTime
active bg	skyblue3
anchor	w
background	skyblue4
command	on_chkTime
foreground	antiquewhite2
select color	skyblue4
text	Auto-reload every (seconds)
variable	che48

Next will be the Spinbox. You'll want to make it a bit smaller in width from the default that PAGE gives you. I made mine only 58 pixels wide. How wide you make it is up to you. Here are the attributes.

Attribute	Value
Alias	Spinbox1
from	45.0
to	300.0
command	on_spinChange
text var	spinbox
wrap	Yes

Last but not least, is the Set button. The original author used this to apply the time delay from the Entry widget. I'm going to take advantage of the Spinbox text var to update the delay time every time we get an image. So if you want to include it, that's fine. If not, that's not a problem.

Attribute	Value
Alias	btnSet
active bg	skyblue3
background	skyblue4
command	on_btnSet
foreground	#ffffff
highlight bg	skyblue3
text	Set

Save your project and generate your Python modules. Next we'll work on the code in the _support module.

We'll start with the imports section.

```
import sys
from os.path import exists
from datetime import datetime, timedelta
from pathlib import Path
import requests
from requests.exceptions import Timeout
from PIL import Image, ImageTk
import shutil
```

I show the import sys line in plain (not bold), since PAGE already has that for us.

We'll also need to import a couple of extra Tkinter modules.

```
from tkinter import Spinbox,
messagebox
```

```
from tkinter import font
```

```
from tkinter import
filedialog
```

```
from tkinter import constants
```

If you scroll down the file a little bit, there is a function called set_Tk_var(). We'll need to make one small change to that function, so I'll show that one change in bold below. Basically, it sets the default for the spinbox to 45 at startup.

```
def set_Tk_var():
    global spinbox
    spinbox = tk.StringVar()
    spinbox.set('45')
    global che47
    che47 = tk.IntVar()
    global che48
    che48 = tk.IntVar()
```

The next function in the file should be the init function. PAGE creates this function for us, and again, we need to make a one line addition to it. I'll put it in bold.

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```
def init(top, gui, *args,
**kwargs):

    global w, top_level, root

    w = gui

    top_level = top

    root = top

    startup()
```

The startup function (right) is run just before the user sees the project main form. Here we set any global variables we need as well as define some constants.

A couple of things you might want to be aware of. We have set the checkboxes to unchecked by using the `che48.set(0)` and `che47.set(0)`. We also set the spinbox to be disabled at startup. When the user checks the “Auto-reload” checkbox, we’ll set it back to a normal state. We also create (if it doesn’t exist) a very simple text file, which will hold the number of the last saved image file.

```
def on_chkAspect():

    #
    print('NasaStills_support.on_
chkAspect')

    # sys.stdout.flush()

    pass
```

```
def startup():
    global feed_url, WIDTH, HEIGHT, HEIGHT_16_9, MIN_DELTA, MAX_DELTA, DELTA
    global Timer_ID, resize, refresh_time, debug
    feed_url = 'https://science.ksc.nasa.gov/shuttle/countdown/video/chan2large.jpg'
    # Frame size without and with 16:9 aspect ratio correction
    WIDTH = 704
    HEIGHT = 480
    HEIGHT_16_9 = 396
    # Minimum, default, and maximum autoreload interval in seconds
    MIN_DELTA = 45
    DELTA = MIN_DELTA
    MAX_DELTA = 300
    refresh_time = MIN_DELTA
    resize = True
    spinbox.set(DELTA)
    che48.set(0)
    che47.set(0)
    w.Spinbox1.configure(state=constants.DISABLED)
    debug = True
    # check for existence of the save file counter
    if exists('filecounter.txt'):
        pass
    else:
        filecount = open("filecounter.txt", "w")
        filecount.write('0')
        filecount.close
    # Set up the root.after timer
    centre_screen(777, 657)
    Timer_ID = root.after(0, on_tick())
```

We really don’t need to have any code in the `chkAspect` function, so I commented out the PAGE debugging code and set it to pass.

```
def on_chkTime():

    #
    print('NasaStills_support.on_
chkTime')

    # sys.stdout.flush()

    if che48.get() == 1:
```

```
    w.Spinbox1.configure(state=tk
.NORMAL)

    else:

    w.Spinbox1.configure(state=tk
.DISABLED)

    refresh_time =
spinbox.get()

    root.update()
```

Here is the `chkTime` function I told you about. We check if the

checkbox variable is equal to 1. If so, we set the spinbox state to normal. Otherwise set it to disabled.

```
def on_btnExit():

    #
    print('NasaStills_support.on_
btnExit')

    # sys.stdout.flush()

    destroy_window()
```

HOWTO - PYTHON

The `on_btnExit` is the callback for the Exit button. It simply calls the `PAGE` created function `destroy_window` to close the program properly.

The `on_btnReload` function is the callback function that will reload the image. It calls the `get_image_from_web` function. If you click the Aspect checkbox, this will force a refresh of the image in whatever aspect ratio is currently set, either 16x9 or 708x480.

```
def on_btnReload():  
    #  
    print('NasaStills_support.on_btnReload')  
  
    # sys.stdout.flush()  
  
    global feed_url  
  
    get_image_from_web(feed_url)
```

The `on_btnSave` callback function (top right) will attempt to save the current image to a file. It first opens the `filecounter.txt` file (which is created at startup if it doesn't exist), reads the number of the last file (0 if none have been saved), increments by one, and then appends that value to "NasaStills" in the filename "NasaStills?.png".

All files are saved directly to the source code folder.

The `on_btnSet` callback function is not needed if you decided not to include the Set button. If you did, and followed the instructions, this will cause an information dialog box to be displayed by calling the `showinfo` function.

```
def on_btnSet():  
    #  
    print('NasaStills_support.on_btnSet')  
  
    # sys.stdout.flush()  
  
    showinfo("Set", "Set  
function is not yet  
implemented")
```

The `on_spinChange` callback function fires every time the spinbox is incremented or decremented. It simply sets the global variable `refresh_time`. It's an artifact from an earlier version that I did, since the `on_tick` timer function currently gets the value directly from the spinbox to set the next timer value. I provided it here just as an example of how to get the value of the spinbox.

```
def on_spinChange():  
    #  
    print('NasaStills_support.on_
```

```
def on_btnSave():  
    # print('NasaStills_support.on_btnSave')  
    # sys.stdout.flush()  
    # showinfo("Save", "Save function is not yet implemented")  
    # get last filename  
    filecount = open('filecounter.txt', 'r+')  
    global lastfile  
    lastfile = filecount.read()  
    lastfilename = int(lastfile) + 1  
    filecount.seek(0)  
    filecount.write(str(lastfilename))  
    filecount.close  
    src = 'local_image.png'  
    dst = f'NasaStills{lastfilename}.png'  
    shutil.copyfile(src, dst)
```

```
spinChange')  
  
    # sys.stdout.flush()  
  
    global refresh_time  
  
    refresh_time =  
    spinbox.get()
```

The `get_image_from_web` function (next page, top right) is where the first part of the "magic" happens. We use the `requests.get` method from the `requests` library to grab an image from a website. The image is received and saved as a .png image. Then, we verify the width and height of the image. If it is the correct size (704x480), and the aspect ratio checkbox is not checked, then it is simply saved as a local image. If the aspect ratio checkbox IS checked, then the PIL library resizes to the 16x9 format before it gets saved. Finally,

we set the image attribute of the Label to the image we just downloaded. We also save it to a convenient local file, in case the user wants to save it.

The `on_tick` function (page after next, top right) is where the rest of the "magic" happens, in my mind at least. Here we use the `root.after` function of Tkinter to create a timer event. The first thing we do is to get the current value of the spinbox (between 45 and 300) and store it in a temporary variable `rt` (standing for refresh time). It then calls the `get_image_from_web` function to get the image and refresh the Label. Finally the callback is enabled with the time in milliseconds (`rt * 1000`) and reset the callback for the next call.

HOWTO - PYTHON

The showinfo function takes two parameters, title and message, then calls the Tkinter message box to show the message box to the user. We also provide the parent (which in this case will always be root, but that will keep the messagebox over the actual application and set the icon to the INFO icon.

```
def showinfo(titl, msg):  
  
    messagebox.showinfo(titl,  
msg, parent=root,  
icon=messagebox.INFO)
```

The showerror function is almost exactly the same as the showinfo function, but shows an error message box with an error icon instead.

```
def showerror(titl, msg):  
  
    messagebox.showerror(titl,  
msg, parent=root,  
icon=messagebox.ERROR)
```

Finally, we have the centre_screen function, which takes the width and height of our main form (which is provided in the GUI python file that PAGE creates). It then uses the screen width and height to calculate the centre of the screen and form.

```
def get_image_from_web(url):  
    # Attempt to get image from url and place it in w.labelImage  
    global _img2, debug  
    pic_url = url  
    if debug:  
        print(f'Refresh Time: {refresh_time}')        print(f'Attempting to get {url}')    try:  
        with open('pic1.jpg', 'wb') as handle:  
            response = requests.get(url, stream=True)  
            if not response.ok:  
                print(response)  
            for block in response.iter_content(1024):  
                if not block:  
                    break  
                handle.write(block)  
            jpgfile = Image.open('pic1.jpg')  
            jpgfile.save('local_image.png')  
            original = Image.open('local_image.png')  
            wid, hei = original.size  
            if che47.get():  
                newheight = HEIGHT_16_9  
            else:  
                newheight = HEIGHT  
            if debug:  
                print(f'Width: {wid} - Height: {hei}')            _img1 = original.resize((WIDTH, newheight), Image.ANTIALIAS)  
            _img2 = ImageTk.PhotoImage(_img1)  
            w.labelImage.configure(image=_img2)  
            _img1.save('local_image.png')  
    except Exception:  
        boxTitle = "Image Error"  
        boxMessage = "An error occurred getting the image."  
        showerror(boxTitle, boxMessage)  
        if debug:  
            print("An error occurred getting the image")  
        _img2 = None  
        w.labelImage.configure(image=_img2)
```

```
def centre_screen(wid, hei):
```

```
    ws =  
    root.winfo_screenwidth()
```

```
    hs =  
    root.winfo_screenheight()
```

```
    x = (ws / 2) - (wid / 2)
```

```
    y = (hs / 2) - (hei / 2)
```

```
    root.geometry('%dx%d+%d+%d' % (wid, hei, x, y))
```

That's it. Our project is completed. I feel happy about the functionality that Tkinter provides against the PySimpleGUI toolkit. When I did the first version of the

program, it took me only about 30 minutes to design the PAGE GUI form and write or borrow the code snippets from some of my previous programs. The length of the actual support module with comments (LOTS of comments), and double spacing between functions, is only about 230 lines of code, which isn't too bad.

You can find the code already created for you and ready to run at my github repository at <https://github.com/gregwa1953/FCM-175>.

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

```
def on_tick():
    global Timer_ID, debug
    global feed_url # , WIDTH, HEIGHT, HEIGHT_16_9, MIN_DELTA, MAX_DELTA, DELTA
    if debug:
        print('Into on_tick')
        print(f'RefreshTime = {spinbox.get()}')
        print(datetime.now())
    rt = int(spinbox.get())
    if debug:
        print(f'rt: {spinbox.get()}')
    get_image_from_web(feed_url)
    Timer_ID = root.after(rt * 1000, on_tick)
```



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



HOW-TO

Written by Erik

Latex Pt.8

Open Gummi and we can re-use the “code” from part 6, why waste?

The package we will be using is amsmath, which stands for American Maths Standards or something, I am just using and don’t really care about the details, don’t judge.

Add it, I am not going to tell you how or spoonfeed you, the great thing about Gummi is that if you make a boo-boo, the PDF preview on the right will go dark.

Unlike TexStudio, it does not auto-complete, so you get to learn what to type. This can be a positive and a negative, depending on your point of view. If we need to add something simple in the line we are writing in, simply enclose your formula in dollar signs, $a=b+c$, otherwise we use math mode. (<https://www1.cmc.edu/pages/faculty/aaksoy/latex/latexthree.html>). Just like sections, we simply add one. See if you can make head or tails from this “code”:

See? The more we practice, the easier it becomes!

```

\documentclass[a4paper, twocolumn]{article}
\usepackage{lipsum}
\usepackage{amsmath}

\title{Stop being Poor}
\author{Donald Trump}

\begin{document}
  \maketitle

\begin{abstract}
  \lipsum[1]
\end{abstract}

\tableofcontents

\section{Mafs}
Feeling smarter already:  $E = mc^2$ 

\begin{equation}
  E = mc_2
\end{equation}

\end{document}

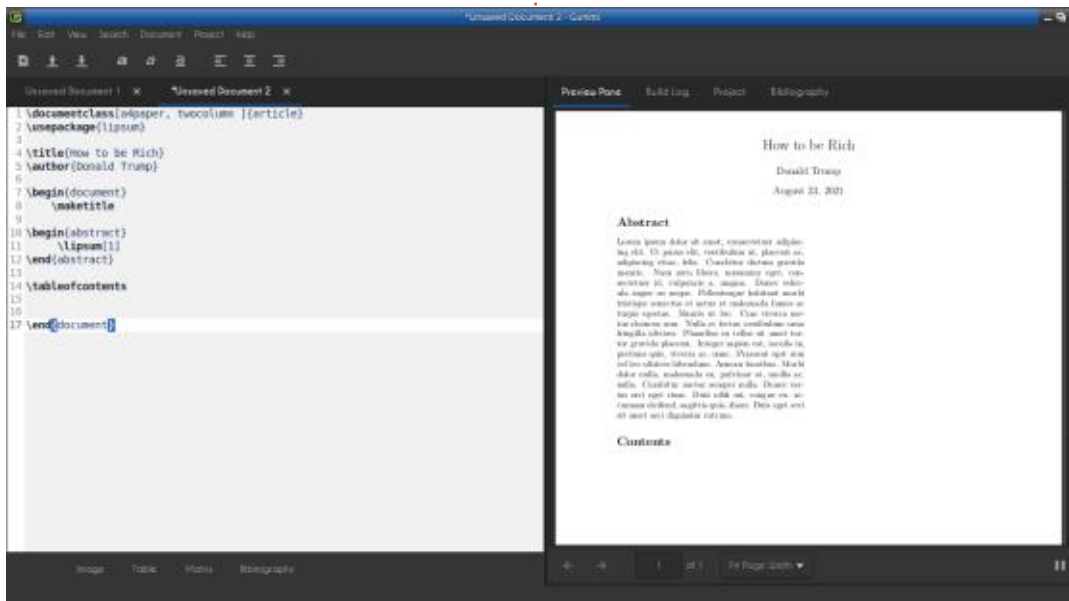
```

Inside the equation section, please please replace the contents with:

$$\sum_{i=1}^D (x_i - y_i)^2$$

See what you got. We use the escape character before the summation, ‘sum’, or else LaTeX treats it as a word. (In the screenshots, you may see mine was

slightly different, but I want to keep it simple, so we can get it and move along). You will notice that $i=1$ is wrapped in curly braces. Rule of thumb, always wrap equations, or it will be treated as plain text. Go on, take them out and see what happens. We can also reference our equations like we did in text, just add a label before your formula and you can reference it from anywhere in the text.



```

20 \begin{equation}
21     HUBER LOSS: L_{\delta} =
22     \left\{ \begin{matrix}
23         \frac{1}{2}(y - \hat{y})^2 & \text{if } |y - \hat{y}| < \delta \\
24         \delta((y - \hat{y}) - \frac{1}{2}\delta) & \text{otherwise}
25     \end{matrix} \right.
26
27 \end{equation}
28

```

Spacing is important when working with formulas, etc. See my mistake, pressing enter after the last line.

This (shown above) will get no output in Gummi.

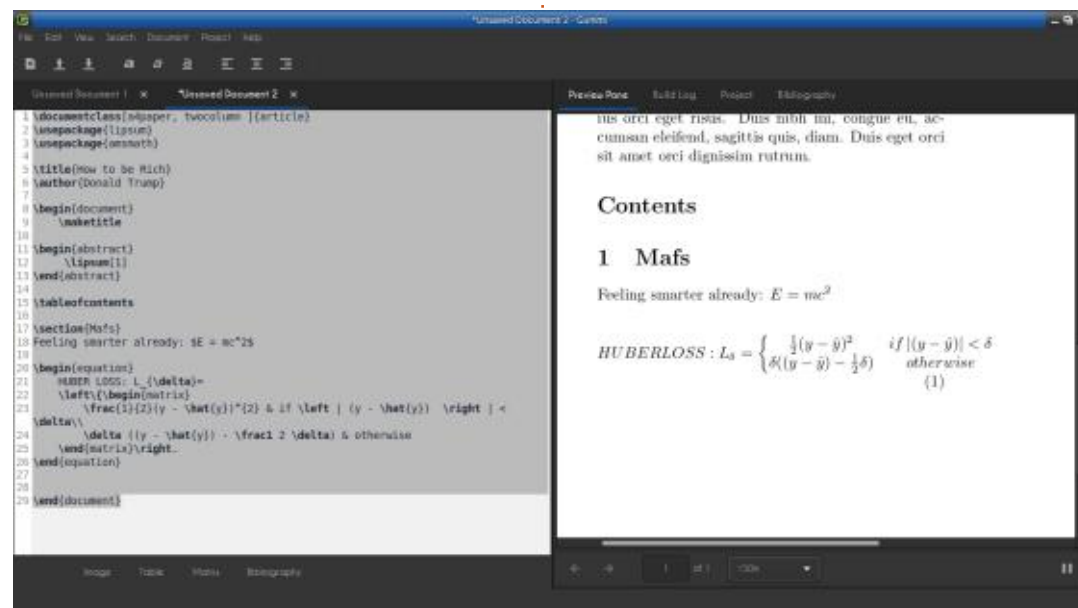
And removing the new line makes it all work. I will not be covering all the ways to do mathematics in LaTeX, as this is for beginners only – to understand common mistakes and to have an idea of what LaTeX is capable of.

Here is a link so you can see

more: <https://www1.cmc.edu/pages/faculty/aaksoy/latex/latexthree.html>

That should be short and sweet, with just enough information to get you going without being boring. Want more? Next issue, my good man!

As always, mistakes happen, help us help you: 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 Alan Ward

The Web Distributed Authoring and Versioning – styled as WebDAV in a curious combination of capitals – has come up several times in articles here on FullCircle Magazine. It can be seen as a fair example of the type of technology some of us old-timers like: simple, easy to work with, fast, and gets the job done with minimal stress. Let us go right on and say upfront that security is not a priority in this use-case. If you need security, you will lose convenience – and convenience is what today's piece is all about.

In its essence, WebDAV can be defined as using a simple web server and its associated HTTP protocol to share files across a network. Sharing files is an obvious necessity for most homes today, while doing so using web-based services over the Internet seems a tad overkill just to get a bit of data from one room to the next. Also, WebDAV has quite a bit of support from many desktop applications in the Ubuntu ecosystem, which is something I will get into a bit later, after actually setting up the server.

For the time being, let us just state that our goals will be simple file sharing at user level, as in accessing files from any device on the network, editing text files on a shared volume, or making quick backups of data we need to share between computers.

The following community tutorial at <https://www.digitalocean.com/community/tutorials/how-to-configure-webdav-access-with-apache-on-ubuntu-18-04> is a good place to start. I essentially followed their instructions, with some tweaks.

Start out by installing the Apache server, if it is not already on your system. For instance:

```
sudo apt update
```

```
sudo apt install apache2
```

At this point, you can check your web server is already working by pointing a browser to the address <http://localhost>. You could also access it from another device on your network by using the server's IP address. In my case, the desktop

computer I am using has a local network address 192.168.1.104, so I typed in: <http://192.168.1.104>. You should see the server's default page (shown below).

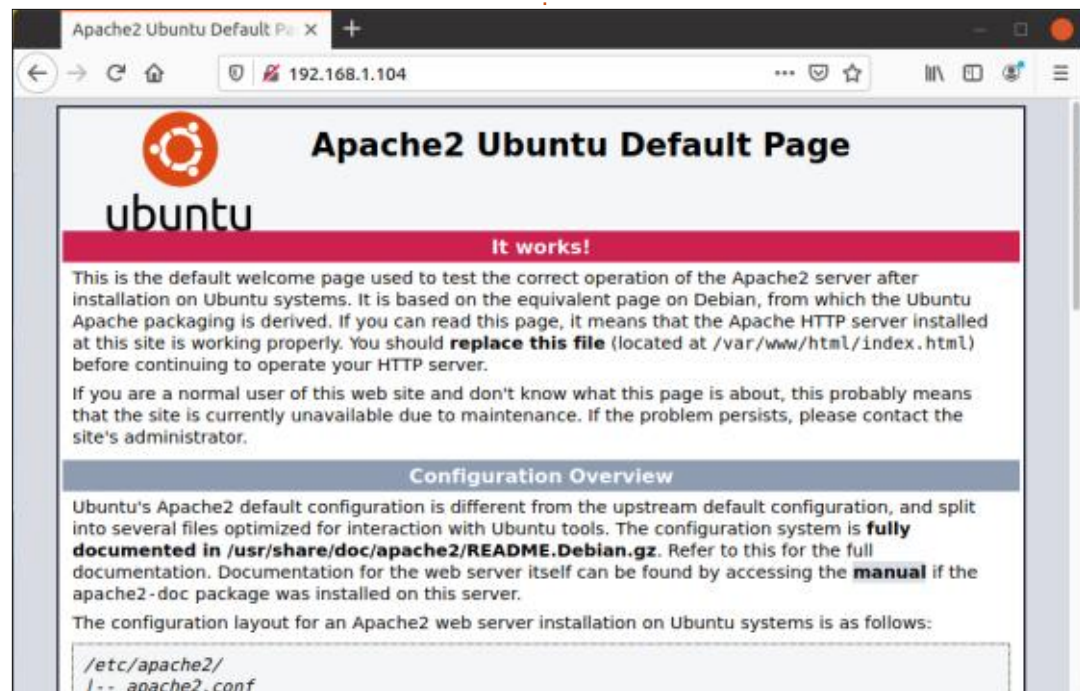
For our purposes, we will leave this default web page be. If you are interested, the files are in the directory `/var/www/html`. Let us set up another directory to serve as our WebDAV share. We will also make this directory writable by the web-server's user, so it can write files to

it:

```
sudo mkdir /var/www/webdav
```

```
sudo chown www-data:www-data /var/www/webdav
```

Now, edit the Apache configuration file `/etc/apache2/sites-enabled/000-default.conf` and add the following lines at the end. They make this share available at address <http://localhost/webdav>, and turn WebDAV access on:



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```
Alias /webdav /var/www/webdav
<Directory /var/www/webdav>
    DAV On
</Directory>
```

You will need to do this as administrator, so perhaps:

```
sudo editor /etc/apache2/
sites-enabled/000-
default.conf
```

That is about it. If we restart our Apache server, we can now browse our new WebDAV share in a web browser, using either the local address `http://localhost/webdav` on the server itself, or its IP address from another device: `http://<your-IP-address>/webdav`.

However, a web browser such as Firefox or Chrome can only read data from our share, not write or modify files. This is already useful, specifically to share files from our computer to any device on our network. Just copy them to the directory `/var/www/webdav`, and they will appear for any device that

has a web browser in it.

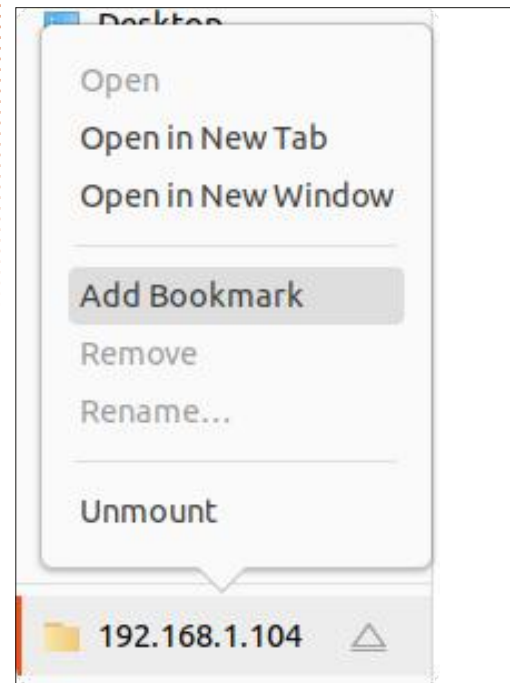
Now, what about adding files from a file manager?

I tried this out using Ubuntu 21.04's Gnome nautilus file manager. We will need to know the key combination to type in an address: `<Control> + L`. Then, just put in our WebDAV address and the directory contents will show up (shown above).

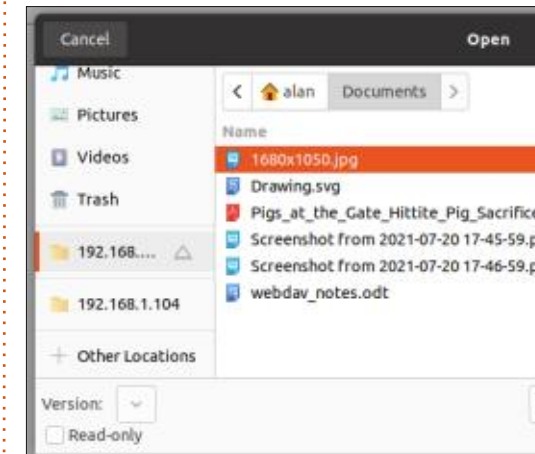
Yours will probably be empty to begin with; to populate it just add files by dragging them from any other folder. In many ways, this is a lot like using a USB stick to store files. You can erase files (please be careful, they really are wiped out with no warning!), rename files, create directories and subdirectories, and move files around just as with any other local

disk (shown bottom left).

If you find yourself using this WebDAV share regularly, it may be a good idea to bookmark it in the file browser, using a right mouse-click.



As you can see, I used this very same setup to prepare the article, so you could say I eat my own dog food. What did come out useful was the possibility of editing files directly from the WebDAV share, both on the server itself and from another computer on the local network. Many programs in Ubuntu and its derivatives are aware of these shares, and can use them. For instance, I was able to open a file directly from the WebDAV share using LibreOffice's standard Open dialog, and save it back both using the Save and Save as dialogs.



When LibreOffice is editing a remote file, this is indicated in the



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window title bar. Since remote editing a file is not completely safe, it is always best to have a backup copy just in case. I did suffer an unforeseen electrical problem during which the desktop that serves as a server did not have a UPS and went down. When the lights came back on, the computer just powered back up, and the battery-powered laptop on which I had been doing the actual editing on was able to use LibreOffice's default recuperation mechanism to restore the file to the point when power had been cut off at, and carry on. So, it must be said that the DAV system is sufficiently robust that it may very well be used for remote edition in many cases. Just make regular copies with different file names from time to time if editing a long document, especially if your local network has its glitches.

webdav_article.odt (Remote) - LibreOffice Writer

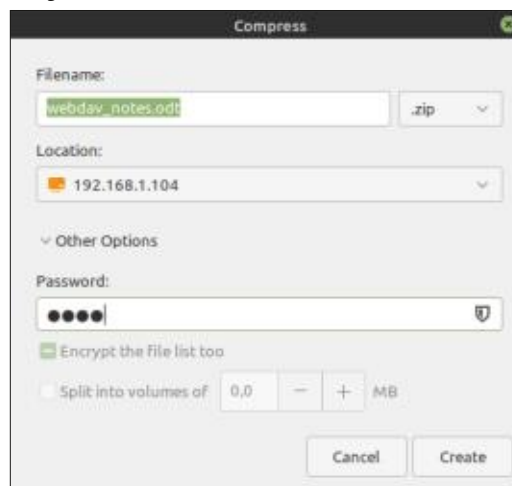
Having a shortcut in the file manager also simplified access from within programs, since in most modern applications, the file manager's entire left panel, with its tree view, is available in the program's Open dialog.

I also edited the screen captures by invoking Gimp from the WebDAV share with the right mouse click, with no problems to report.

Now, there are some caveats we need to talk about. In the first place, seasoned users or administrators are probably yelling at their screens about not having any security at all in place. They are quite right about that. At the very minimum, setting up a password protection for your WebDAV share is a good idea. The tutorial referenced above has the instructions to do so. Additionally, perhaps using HTTPs instead of HTTP would be a plus, if any data needed to pass through an externally-visible network. This can also be done with Apache, though you will need a server certificate. Some technical know-how on web server management can be of help, so this would probably be outside the comfort zone of most casual home users.

Now, whether just a simple password-based scheme is sufficient security for your uses, or even if it is at all necessary, is up to you. Personally, if I have a file containing sensitive data, I will probably be encrypting that file

using any of the tools available on a Linux system, even when it is in situ on my hard drive. Just a hint: a password can be used when creating a ZIP file, and many other compressed file formats for that matter. Linux Mint's nemo file application has the option: just right-click on the file to compress, and is it down there among the "Other Options". Unfortunately, I cannot find this feature in Gnome's current nautilus file manager anymore.



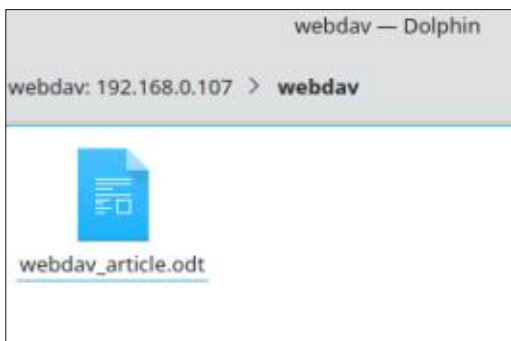
A second point is that concurrent access by two users to the same file in the WebDAV shared folder is not a good idea. This file sharing system is not safe in that sense. So, if two or more people are accessing the same file, and modifying or writing to it, set up a

system to make sure you do not overwrite each other's work accidentally. Using different filenames is an easy solution.

Finally, please remember a WebDAV is not, in itself, a backup solution. It may become one only if you have a second copy of each file on another computer and hard drive, e.g. one on the DAV share on a desktop, and a second in a local directory on a laptop. As usual, if you have less than three distinct copies of each file, you run the risk of losing a disk and some of your data. But WebDAV does make it easier for the end user to make copies of files on another computer. So, even though I do stress WebDAV is not a backup in itself, it may have a role to play in making backups easier on the user, and so more likely to happen in real life. Perhaps, this is a point to consider carefully.

Finally, to sum up, let us have a bit of a gallery of devices accessing a WebDAV share. This first one is using KDE Plasma's dolphin file manager. In this case, for some reason we need to use the address `webdav://<your-IP-address>/webdav:`

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We can also change our platform completely, and use Apple's Mac OS. Here, the address is simply `http://<your-IP-address>/webdav`. We can use it either inside Safari, or inside the finder (file navigator). In the first case, files will be accessible but cannot be written, but in the finder, the shared directory appears on the desktop as any other mounted unit and can be



used in the same way:

Just as in Gnome, Cinnamon or KDE, once the shared directory is bookmarked in the finder in Mac OS, applications can access it directly – which facilitates opening or saving files. I find this consistency between Linux and Apple desktop behaviors rather pleasing. It can also be quite practical to do some work on a file in one system, then continue on another computer with different characteristics and software, if needed. This trick can also come in handy in households with a varied set of computers and users.

As for handheld devices such as phones or tablets, as stated, read

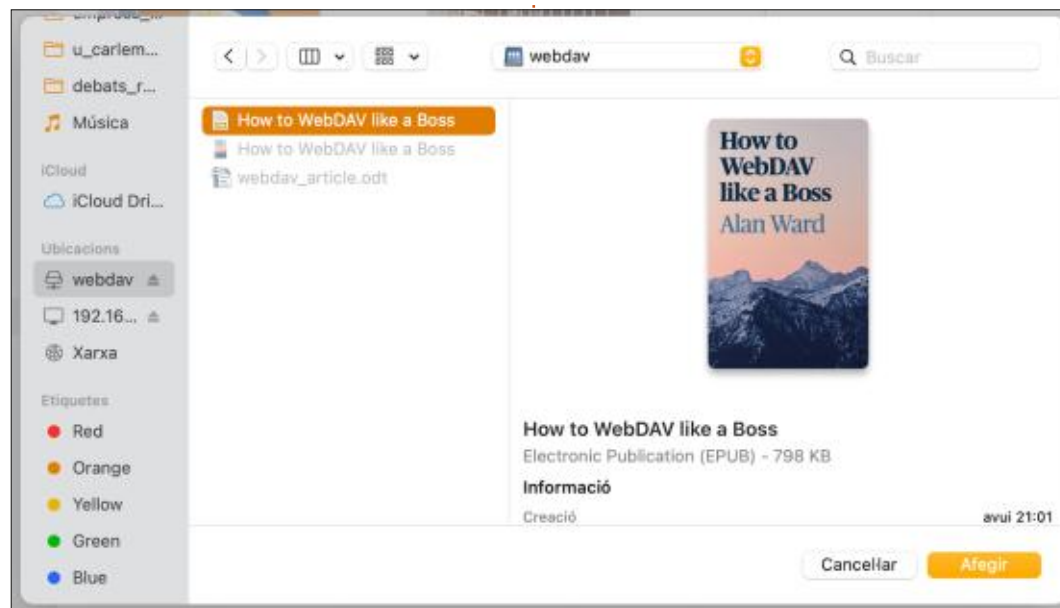
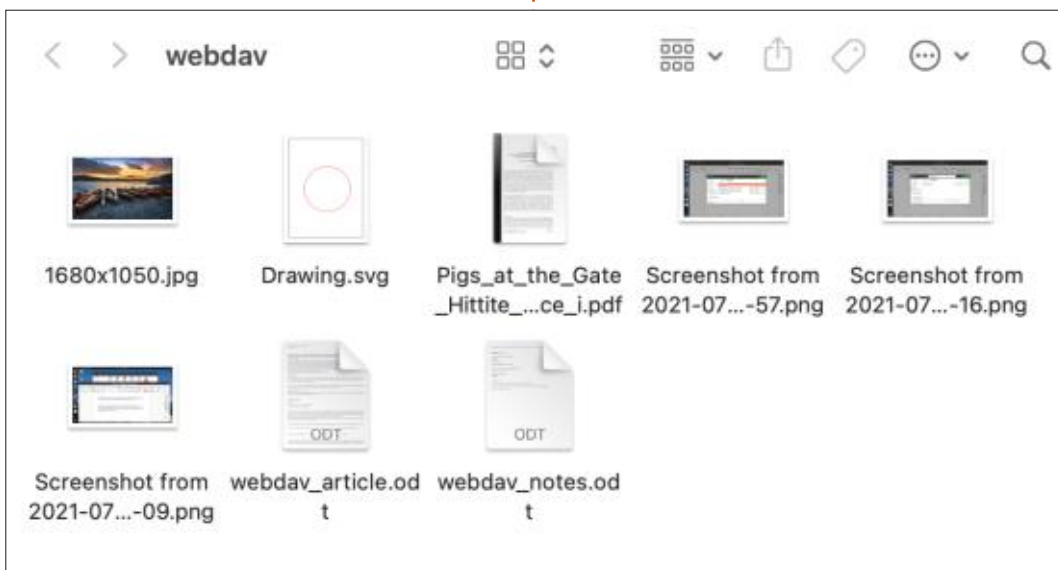
access to the share is easy from within the web browser. We can download files from the share to the device, which covers the activities most of us do, such as reading PDF files or watching videos on the device.

Things can get a bit more involved if we want to transfer data in the opposite direction. Apple's ecosystem is, as usual, a good showcase of what can happen when a single company controls the operating system entirely – the contrary of what we are used to in the open source community. The case in point is the Files app in iOS (Apple's tablet OS) which used to be able to connect natively and

write to WebDAV shares; recent versions have removed this option (from Files but also from Pages), which does seem a bit of a pity.

There is some official guidance in this article from Apple Support: <https://support.apple.com/en-us/HT210932>. However, there are plenty of alternatives available in the App store. The situation is similar on Android devices, with a further difficulty regarding the large number of versions of this operating system that are in active use.

So, to be clear going forward, just what can and cannot WebDAV do for us? What it can do is provide

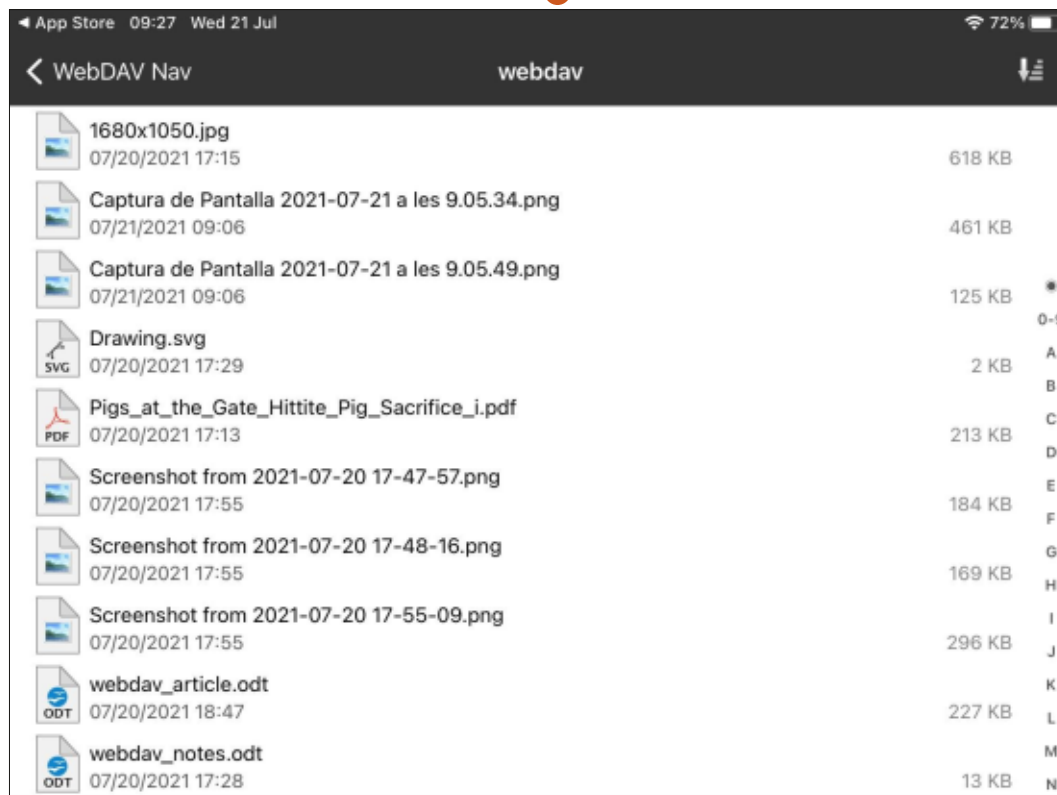


HOWTO - SETUP WEBDAV

a simple and easy to set up a file share on our local network. This can be very convenient as a temporary storage to share files between computers, or between users, even working with different operating systems. Users can open and edit files directly from the shared directory. WebDAV can also make files available to mobile devices without needing to upload to and download from the Internet. What would be more complex to set up is true security, though this may not be an issue on a home network that is correctly firewalled off from the Internet... and to which the neighbors do not have WiFi access.

What it cannot do well is to replace completely web-based services, specifically those which allow us to send files from a mobile device to our computer. In this case, it is probably more convenient for most users to continue using cloud storage or even email to send files over, or even a simple Bluetooth connection for small files.

In a future article, I will be further exploring the applications of this technology to share calendars (CalDAV) or contact information (CardDAV).



Alan holds a PhD in Information and the Knowledge Society. He teaches engineering at Escola Andorrana de Batxillerat (high-school). He has previously given GNU/Linux courses at the University of Andorra, and taught GNU/Linux systems administration at the Open University of Catalonia (UOC).

FULL CIRCLE WEEKLY NEWS



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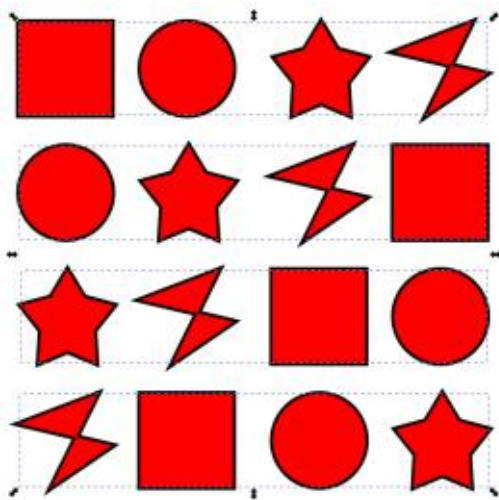


HOW-TO

Written by Mark Crutch

Inkscape - Part 115

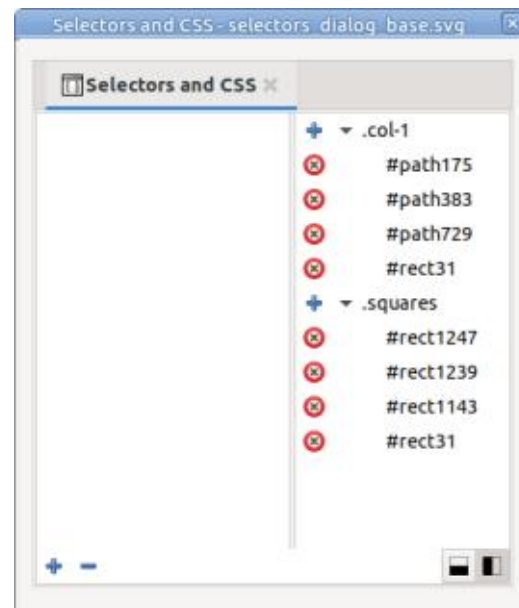
This month is the last part of our exploration of the new Selectors and CSS dialog ("Selectors dialog" for short). As with the previous parts, we'll be working with this collection of shapes arranged as four groups of objects, one for each row.



We've previously looked at using class and element selectors in the dialog, but, as you may recall from part 112, CSS allows for a variety of other selectors, and different ways to combine them. Inkscape's CSS parser doesn't support all the various possibilities, but it does manage some of them. Whether or not they're actually useful to you is

another question entirely, but, in this instalment, I'm going to take a look at some advanced selectors that do work, as well as some that unfortunately don't.

Starting with a blank Selectors dialog, I've created a class called "squares" that includes all the squares in our sample image, and a second class called "col-1" which contains all the elements in the first column of objects. As you can see, the "#rect31" element appears in both, as you would expect.

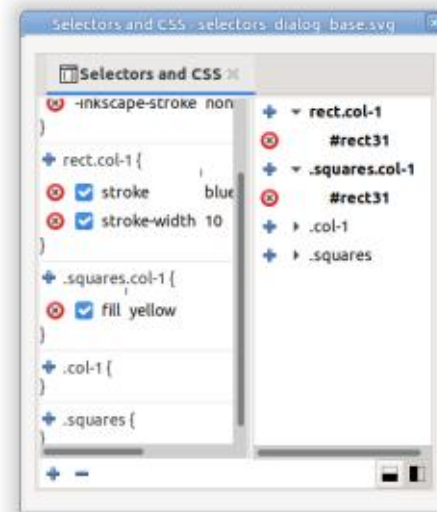


Deselecting everything in the drawing, and clicking the plus button at the bottom of the dialog, triggers the dialog for adding a new selector – pre-filled with ".Class1" as usual. As we saw last time, it's also possible to enter an element name here, but, this time, we'll create something even more complex: a selector that targets multiple classes. If we enter a value of ".squares.col-1" as a single string, with no spaces, the selector will target only those elements that have both the "squares" and "col-1"

classes applied. In our case the only thing that matches that combination is the square at the top left.

Alternatively, we can combine an element selector with a class selector. Entering "rect.col-1" for example, will only match those <rect> elements that also have a class of "col-1" applied. Again, the only thing that matches in this case is the square at the top left.

Using these selectors, I've added rules to change the color of any



object where both classes match, and the stroke of any <rect> with the “col-1” class. The effect is that the square at the top left has both the new rules applied, but no other elements are affected.

The ability to combine classes in this way could potentially be useful, especially if you want to use class names to categorize your elements. When producing game assets, for example, you might have multiple images in a single document, covering different types of landscape in different seasons, and with different assets. Need to quickly find the image for a wintery forest tile with a mine? Add a new selector for “.winter.forest.mine” – assuming you’ve already set the right classes on your images.

Combining elements and classes

Selector	Description	Example
[class]	Match any element with the “class” attribute.	<rect class=“squares” ... />
[class=“col-1”]	Match any element whose “class” attribute exactly matches the string “col-1”.	<rect class=“col-1” ... />
[class~=“col-1”]	Match any element whose “class” attribute is a whitespace separated list in which any of the values match the string “col-1”.	<rect class=“squares col-1” ... />
[class*=“col”]	Match any element whose “class” attribute contains the string “col” anywhere within it.	<rect class=“col-1” ... /> <rect class=“my-col-2” ... />
rect[class]	Attribute selectors can be combined with other selectors – in this case to find any <rect> which has a “class” attribute.	<rect class=“squares” /> <rect class=“col-3” />

is probably less useful, particularly given how many of Inkscape’s primitives are actually just <path> elements in the underlying SVG, and are therefore indistinguishable from each other via a simple element selector. If you can think of a good use case for this, however, it’s nice to know that Inkscape already supports the format.

The fact that Inkscape piles its own internal attributes onto <path> elements in order to support some of its basic shapes does lead onto another type of CSS selector that’s worth further examination: the attribute selector. In the world of CSS it’s possible to select elements that have a particular attribute, or which have an attribute set to a particular value. The table below covers the main selectors that will work in a web browser.

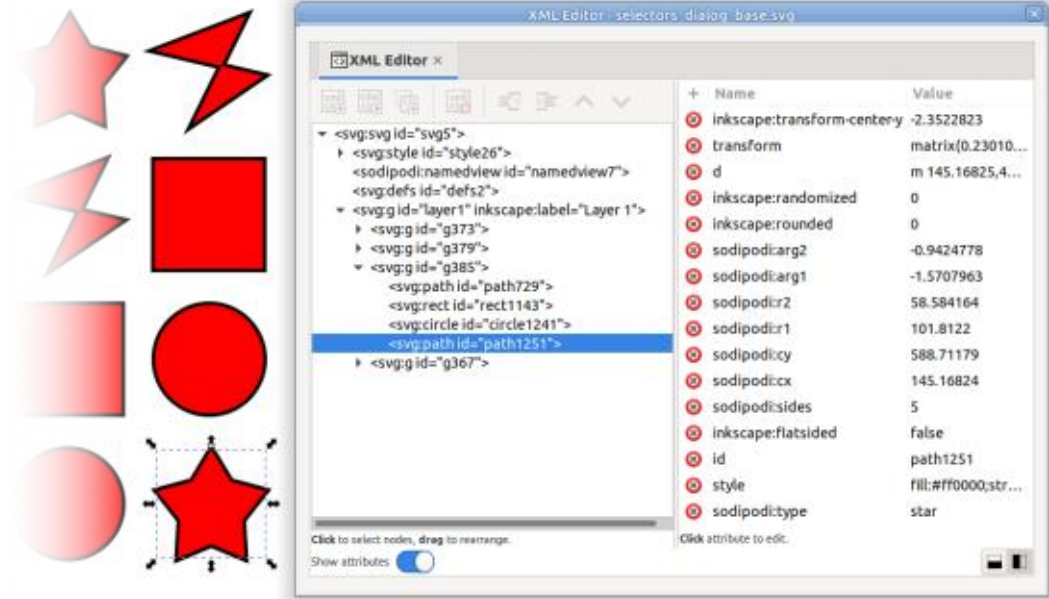
There are other variations to find substrings only at the start or end of the value, or which force case sensitivity when matching, for example. If you’re a web developer who wants to know more about attribute selectors, I recommend looking them up on the Mozilla developer site (link at the end of the article).

For our purposes, these should allow us to distinguish between different types of primitive in Inkscape. Let’s look at one of our star shapes in the XML editor (shown bottom right).

That’s a long list of attributes,

but the one we’re most interested in is the last one: “sodipodi:type” with a value of “star”. As I’ve discussed previously in this column, the “sodipodi” part is the namespace for this attribute, which is required because it’s not part of the SVG specification. In practical terms, however, I usually just refer to this as the “type” attribute.

Suppose we want to target just the stars with a CSS rule. Based on the table of attribute selectors you might expect [type=“star”] to do the job, but it doesn’t. Not even a more basic selector of just [type] is accepted by Inkscape.



HOWTO - INKSCAPE

Perhaps it's that pesky namespace. How about [sodipodi:type] or [sodipodi:type="star"]? No, they don't work either. In fact namespaces in CSS are a bit of a pain, requiring you to redefine your prefixes in the CSS in addition to the definition in the XML itself. In the selector rule, the namespace is then separated from the value by a pipe character, not a colon. So, in theory, manually adding an "@namespace" rule to the stylesheet, then using [sodipodi|type="star"] should do the job. But not in Inkscape.

I've tried many, many different combinations of attribute selector, both with and without namespaces, but can't get any of them to work within Inkscape. This is a real shame as it makes it impossible to target specific Inkscape primitives, or elements with other proprietary attributes.

If you're a web developer, then you may wish to know that these selectors do work as advertised in web browsers, provided you include the CSS namespace declaration and use a pipe separator. This <style> block, for example, will cause all the stars in

the test document to appear with an orange fill within a web browser, but it doesn't work when the same file is loaded into Inkscape.

```
<style id="style258">
  @namespace sodipodi
  url(http://
sodipodi.sourceforge.net/DTD/
sodipodi-0.dtd);
  [sodipodi|type="star"] {
    fill: orange !important;
  }
</style>
```

Although Inkscape doesn't work with attribute selectors, there are a few other useful CSS rules that it does seem happy with. First, we have the descendent selector: simply enter two selectors with a space between them, and the rule will match only if the element matching the second selector is some descendent (in the XML structure) of an element matching the first selector.

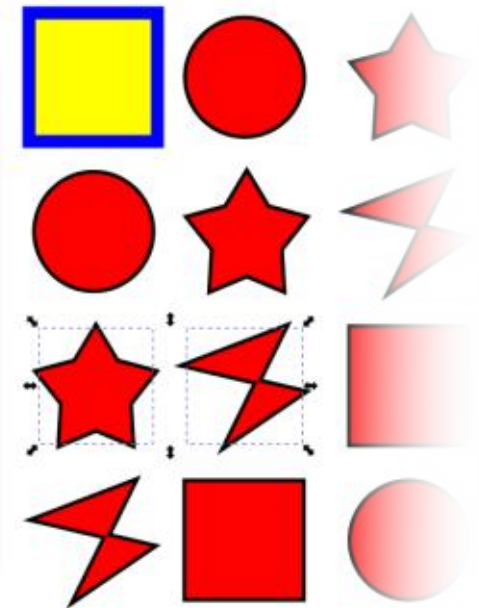
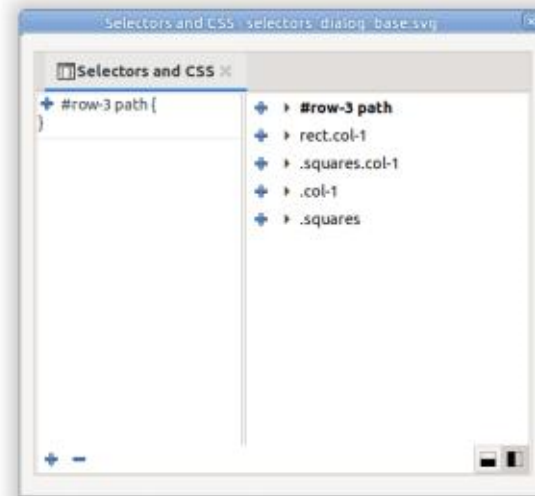
For example, in our test file, each row of objects is in a separate group, and I've set the ID for each group (using the Object Properties dialog) to "row-1", "row-2" and so on. If I want to select all the <path> elements in row 3 (i.e. the star and

Bézier path objects), then I can create a selector with the string "#row-3 path" to find every <path> element, but only if it's a descendent of the element with the ID "row-3".

Note that "descendent" in this case means any child, grandchild, great-grandchild and so on down the tree. If you want to select only immediate children, then use a ">" character between the individual parts of the selector (with optional white space around it for readability).

Sometimes you might want a single set of CSS rules to apply to

several different selectors. In that case, you can comma-separate the individual items. So, to create a rule that matches three specific elements by their IDs, use something like "#rect31, #rect1247, #path729". The easiest way to achieve that is just to select them all before you press the "+" button at the bottom of the dialog: the field that opens for you to enter a selector will be pre-populated with a comma-separated list of the IDs. You can use commas to mix any types of selector, so creating a rule to match any immediate child of the second row plus any circle, would result in this: "#row-2 > *, circle". Notice from



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this example that you can also use an asterisk ("*") to match any element, regardless of its type or class.

Comma-separated lists of selectors can easily become long and unwieldy when you need to match lots of different things. CSS has a couple of features in the form of the ":is()" and ":where()" pseudo-classes that can simplify many such rules. Although Inkscape does let you enter them into the dialog, unfortunately they don't actually work in the program.

Also in the list of useful CSS rules that don't work is the ":not()" pseudo-class. This should allow you to select elements that don't match a particular rule. E.g. ":not(path)" for selecting all the non-path elements. Instead, Inkscape just swallows the new rule when you enter it – without it then appearing in the dialog at all. Prefixing it with a class selector (e.g. ".row-1:not(path)") allows it to appear, but it certainly doesn't work as it should.

There are some pseudo-classes that do sort-of work with Inkscape, but not well enough to be genuinely useful. The ":first-child",

":last-child" and ":nth-child()" selectors work, but only if they're applied to a class or ID selector. For example, ".squares:first-child" will select any element with the "squares" class that is the first child of its parent. In the example file that will match the square in the top left, as it is the first child of the group element that holds the row. In theory you should be able to use just ":first-child" or "*:first-child" to match the first element of any parent but, in practice, that doesn't work at all. This is a real shame as it makes it practically impossible to use the powerful ":nth-child()" pseudo-class to select all the odd children of a group, or every fourth one, for example.

A related set of selectors are ":first-of-type", ":nth-of-type", plus some other "-of-type" strings. Trying to use these will actually cause Inkscape to crash entirely, so definitely steer clear of them!

To summarise my findings, the Selectors dialog is effective when used with simple class, ID or element selectors, including combining them in a comma-separated list. But most of the more powerful CSS rules either don't work at all, don't work as

expected, or might even kill the program. It's probably best to see this dialog for what it is: a replacement for the Selection Sets dialog that also lets you set some CSS rules in a stylesheet, should you wish to. If you're enough of a developer to specifically need a stylesheet in your document, then you're probably better off managing it outside of Inkscape for now. If you want to manage and store just some simple selections, on the other hand, then this dialog should serve you well enough.

Over time, it's likely that Inkscape's CSS capabilities will improve, and perhaps some of the more complex rules will be supported. But, for now, you're best to either keep it simple, or to do it by hand.

LINKS

Overview of CSS resources and tutorials on MDN:

<https://developer.mozilla.org/en-US/docs/Web/CSS>

Attribute selectors on MDN:

https://developer.mozilla.org/en-US/docs/Web/CSS/Attribute_selectors

The @namespace rule on MDN (works in browsers, not in Inkscape):

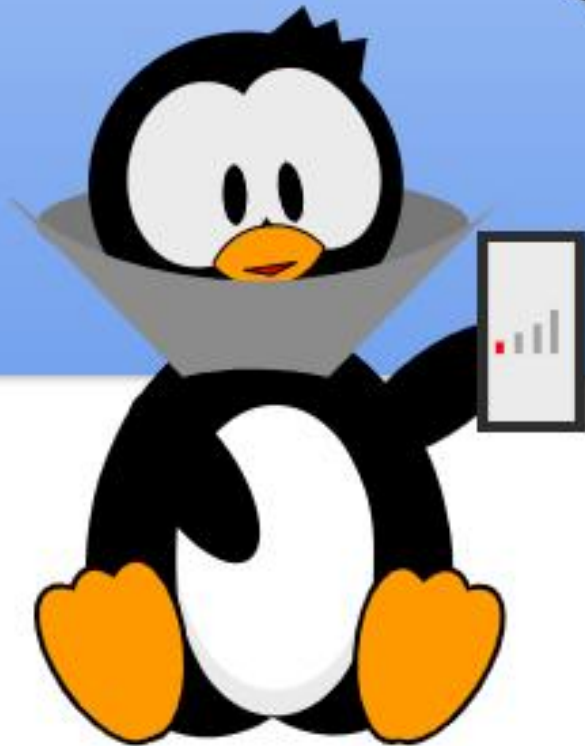
<https://developer.mozilla.org/en-US/docs/Web/CSS/@namespace>



Mark uses Inkscape to create comics for the web (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

NO, I DON'T HAVE
FLEAS, JUST THOUGHT
IT MAY HELP WITH
RECEPTION...





Last column, we installed the retro game Forgotten Realms: Unlimited Adventures from theSSI Gold Box series of computerized Dungeons and Dragons games. We'll take a short look at running the game in order to wrap things up in this month's Retrogaming Revisited.

BACKGROUND OF THE GOLD BOX ADVENTURE SERIES

As you'll remember from the last three columns, Strategic Simulations Inc. produced a series

of Dungeons & Dragons games for DOS called the Gold Box series. They used a common game engine, and allowed you to play D&D on your computer. The final "game" to use the Gold Box engine was Forgotten Realms: Unlimited Adventures.

Forgotten Realms: Unlimited Adventures could be described as a game-creation toolkit. A still active online community continues to provide adventures and upgraded gameplay around this concept, and there are hundreds of modules free to download and play for anyone

who owns Unlimited Adventures.

Fortunately for us Linux users, GOG.COM has a version of FRUA remastered for Ubuntu, as part of their Forgotten Realms Collection 2 (which includes several other Gold Box games) for the genuinely low price of \$9.99.

Working Up the Nerve to Enter the Tomb

Last month, we downloaded and installed Ray Dyer's version of the infamous player killer dungeon module from the pen and paper

game, The Tomb of Horrors. Terrified at the prospect of entering, I ended last month's column after explaining how to download and install this sinister module for FRUA. After an entire month of steeling my resolve, we'll now swallow nervously, set hand grimly to hilt of sword, and press on with our decades long quest to complete The Tomb of Horrors....

CREATING CANNON FODDER, ER, CHARACTERS

A full explanation of how to play



D&D is WAY outside our scope, but we can hit some basics in order to understand how to play FRUA. The first thing players do in a pen and paper campaign is to ‘roll up’ characters, so called because character creation is achieved by rolling dice. Your character has six key attributes, Strength, Intelligence, Wisdom, Constitution, Dexterity, and Charisma. Each is determined by rolling three standard six-sided dice and totaling them up. A frequent alternative method is to roll 4 dice, abbreviated as ‘4d6’, then drop the lowest.

Each strength point is roughly equivalent to bench-pressing 10 pounds of weight (strength 14 means you bench press 140), each intelligence point is equivalent to 10 IQ points (so a 16 intelligence is 160 IQ), and the rest of the scores are similar but more ambiguous. Strength affects your ability to drive a weapon through natural or artificial armor (including tough skin), and the amount of damage done. Intelligence impacts the ability to understand and use magic. Wisdom has to do with one’s resistance to magic and connection to mythical deities who bless you with a different kind of magic,

Constitution is about your ability to take damage and to heal, Dexterity is your nimbleness and ability to avoid getting hit (along with raw foot speed and ability to use ranged weapons like bows and slings), and Charisma is your likability and ability to influence others.

Within FRUA, the dice rolling is done for you. Once we select Play the Game, then Create Character, we get this screen:

Fighters are just what they sound like, Paladins and Rangers are specialist fighters with added abilities, Clerics are warrior priests with magical abilities including both spells and the handy ability to ‘turn’ the undead, Magic-Users are specialists using different types of powerful magic spells than clerics, and Thieves are more accurately described as scouts/spies, although they can certainly also be literal thieves.

Races include the sylvan and naturally magic-adept Elves, the Half-elven (half-human), the sturdy Dwarves and somewhat similar, but smaller and more nimble Gnomes, the hardy hobbit-like Halflings, and (of course) Humans.

Alignment has to do with general life outlook and moral center. Lawful beings believe in structure, laws, and hierarchies. Chaotic creatures are more inclined to value individuality and freedom. Neutral lies between these two, and may represent a desire for balance, or an actual indifference. Along another alignment ‘axis’ is the more self-explanatory Good vs Evil. Make these selections for your character, then hit Done.

COMPUTERIZED DICE ROLLING

Now you’ll see this screen:



The system will automatically outfit you with armor it considers appropriate, represented in part by Armor Class. Dexterity, as mentioned before, can affect Armor Class. Higher Armor Classes (or AC’s) are counter intuitively LESS desirable. The system will also automatically calculate your Encumbrance, a function of your Strength and of how much you are carrying, and your subsequent maximum Movement speed. Damage represents how many dice (of how many sides) you cast to calculate the damage you do in combat with a successful blow, and THACO (To Hit Armor Class 0) represents what you must roll, on a 20-sided die, to hit a foe with an Armor Class of 0, which represents

EVERYDAY UBUNTU

some pretty hard-core armor. The system also calculates your Hit Points, which represents (somewhat abstractly) your ability to take damage in battle. Opponents also have a set number of Hit Points. At zero HP, your character becomes unconscious (and opposing monsters become dead monsters).

DICE IN D&D

D&D uses a large variety of unusual dice, not just the 6-sided dice we're all familiar with. There are also 4-sided, 8-sided, 10-sided, 12-sided, 20-sided, and percentile (100-sided), usually actually done by rolling two 10-sided and interpreting one as 10's and the other as 1's, or by rolling 2 20-sided dice with digits 0-9 each occurring twice, or by the rarely-seen actual 100-sided die.

CREATING YOUR PARTY (WHICH YOU WILL REALLY FIGHT FOR YOUR RIGHT TO....)

After creating an appropriate number of characters (for this dungeon, I'd strongly recommend



the maximum of 6), you will need to bind them all together into a dungeoneering party. Click Add Character, then select characters until your party roster is filled (shown above).

Now click Begin Adventuring to enter the Tomb ... if you dare!



PLAYING THE GAME MODULE

First, you'll see a number of illustrated pages giving you the basics of the scenario. This module uses the original cover art by Jeff Dee, and its GREAT (shown below).

After paging through the introduction, the game will drop your party at the foot of the mountain that The Tomb is inside.

ENTERING THE TOMB OF HORRORS

Brace yourself, friends. We're entering the Tomb! From the opening screen (next page, top right).

you can position the mouse in the view area (upper left) until you see an up arrow, go forward about 9-10 times (using mouse clicks or the keyboard arrow keys) until you see a wall straight in front, then move the mouse to the right side of the view area until you see a right-angle arrow (next page, bottom left).

Click, move forward a space, turn back to the left, click forward, turn back to the left once more,

and you'll see an opening in the cliff face (bottom right).

Click up arrow again to move forward, move forward a few more times to a dead end, turn around and try to leave as you see the entrance closing up behind you, and revel in your untimely demise as you're trapped forever inside the Tomb!

Yahoo! After all these years, I've completed the Tomb of Horrors! Unsuccessfully, I suppose, but completed all the same! Life is now finally complete for me.

There is also a current project called DungeonCraft that provides updated graphics and sound

capabilities to run FRUA modules. Let me know if there's interest and we might just cover that in a future column.

OTHER NIFTY FRUA RESOURCES

There are a LOT of resources online for FRUA, starting with the GOG.COM page we mentioned earlier and the downloadable module repositories we used. But there is much, much more to see. There are updates for the Gold Box engine, added monsters and scenery, utilities to manually change characters (a necessity if you actually wanted to start with Tomb of Horrors, as FRUA only



allows you to start with Level 1 characters, well below what's intended for the Tomb), and a virtual cornucopia of other entertaining and useful goodies. If

there's interest in a follow-up column on FRUA, e-mail me at acer11kubuntu@gmail.com, and we might just revisit the Tomb and/or FRUA in a later column!





It's November and I can't believe we've already gone through eight MicroThis MicroThat articles. We've all come a long way in our understanding of microcontrollers and MicroPython. Back in part 4 (FCM#170), we covered a number of small parts of a large project using the ESP32. Due to a number of things, the article that I wanted to present didn't work out, so I will move a project from my "stuff to do" list. With any luck, I will be able to present it next month.

A while ago, I had an idea about creating a number of standalone temperature sensors for each room in our apartment. The problem (like most apartments) is that the central heating and air conditioning thermostat is placed in an area that really bears no resemblance to the actual needs of the various rooms in the apartment. One room (the living area, where I spend 80% of my waking time) is ice cold all the time – at least to me. Summer or winter, it doesn't matter. It's ALWAYS cold. The farthest bedroom is always hot. Since we have decided that we will be

moving to a house sooner than later, it would be helpful to have these standalone modules in each room of the house so we can glance at the display and see what the room temperature is at any time. The devices are built with the ESP8266, a DHT22 temperature/humidity sensor and a 128x32 SSD1306 display. The overall cost of a single unit is about \$6.00 USD, since I bought all the parts in bulk a number of months ago. Eventually, each unit can have a code upgrade to enable it to talk to a MQTT server running somewhere in the house and have all the temperatures to display on a monitor. Now that you know the idea behind the project, you will recognize that we have already dealt with various parts of this project before. So, let's jump right into the project.

Here is the breadboard layout of the project. Please notice that I used a 128x64 SSD1306 in the diagram, but the code will work with the smaller display. Just be sure that you get the pinout for whichever OLED that you are using

in your project to properly line with the wiring. Sometimes the pins are different from one manufacturer to another.

Now we'll look into the code.

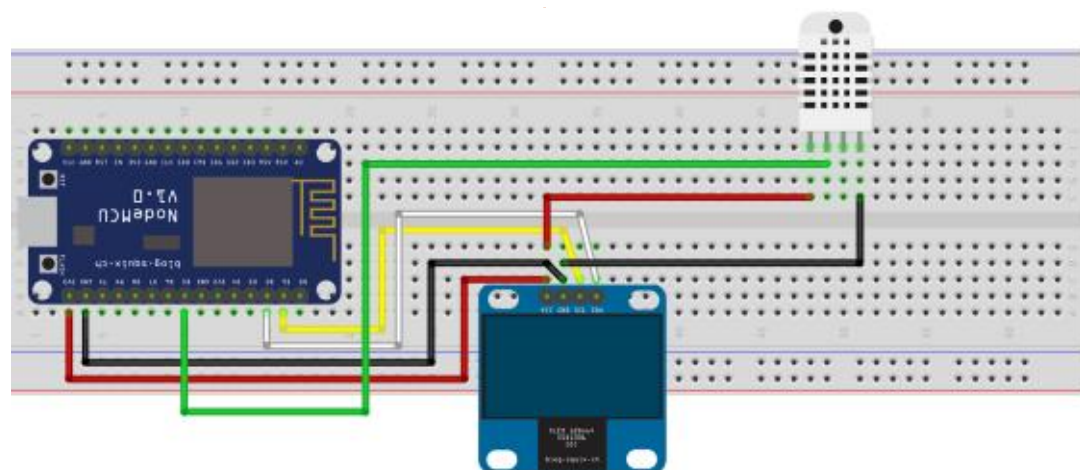
The main file will be named boot.py, and therefore every time the device is booted or reset, the program will start. This is what we want since we won't be using a computer with Thonny to control it once we get ready to deploy it. Once we plug it in, the program should start running.

Here's the import section...

```
from machine import Pin
from time import sleep
import dht
from ssd1306_setup import
WIDTH, HEIGHT, setup
from writer import Writer
# import font10
import font6
```

You should have all of the support files from previous projects. The DHT library is part of the ESP8266 Micropython library. Just in case, I've included all the files that you need in the repository for this project. You'll find the link at the end of this article.

Next we have the setup section.



MICRO THIS MICRO THAT

Here, we set up the DHT temperature sensor and the OLED device.

```
sensor = dht.DHT22(Pin(14))
ssd = setup(False, False)
# wri = Writer(ssd, font10)
wri = Writer(ssd, font6)
Writer.set_textpos(ssd, 0, 0)
```

Notice that I've commented out the use of the font10 file. I find that the font6 is clear enough to see from about 3-4 feet, which should be enough. Use whichever font file you find better for your application.

Now we get to the main loop of the program (top right). We start a "forever" loop, use a try|except call (just in case the sensor fails to read), and use a sleep(2) statement to give the DHT22 a two-second delay before we query it. This is the minimum "safe" time, since the DHT22 is a little slower than some of the more expensive Temperature sensors. We then call the measure method to get the temperature and humidity values, and place them into temporary variables. As I've often said, my old brain can't think in Celsius temperatures. I convert it to Fahrenheit and then send the values (both temperature and humidity) to

the OLED display, and finally call the show method of the SSD library. We end with the 'except' portion of the code to try to recover politely.

That's the entirety of the boot.py code. Now we'll take a quick look at the ssd1306_setup.py file. You should remember that this is part of the writer library that Peter Hinch wrote. We used the writer library back in issue #172 (article part 6). As I usually do, I'll start with the import and global setup sections.

```
import machine
```

```
# def setup(use_spi=False, soft=True):
def setup(use_spi=False, soft=False):
    if use_spi:
        pdc = machine.Pin('X1', machine.Pin.OUT_PP)
        pcs = machine.Pin('X2', machine.Pin.OUT_PP)
        prst = machine.Pin('X3', machine.Pin.OUT_PP)
        if soft:
            spi = machine.SPI(sck=machine.Pin('X6'), mosi=machine.Pin('X8'),
miso=machine.Pin('X7'))
        else:
            spi = machine.SPI(1)
        ssd = SSD1306_SPI(WIDTH, HEIGHT, spi, pdc, prst, pcs)
    # else: # I2C
    #     # if soft:
    #     #     psc1 = machine.Pin('Y9', machine.Pin.OPEN_DRAIN)
    #     #     psda = machine.Pin('Y10', machine.Pin.OPEN_DRAIN)
    #     #     i2c = machine.I2C(scl=psc1, sda=psda)
    # else:
    i2c = machine.I2C(sda=Pin(4), scl=Pin(5))
    # i2c = machine.I2C(0)
    ssd = SSD1306_I2C(WIDTH, HEIGHT, i2c)
    return ssd
```

```
while True:
    try:
        sleep(2)
        sensor.measure()
        temp = sensor.temperature()
        hum = sensor.humidity()
        temp_f = temp * (9/5) + 32.0
        Writer.set_textpos(ssd, 0, 0)
        # wri.printstring('Temp: %3.1f C\n' %temp)
        wri.printstring('Temp: %3.1f F\n' %temp_f)
        wri.printstring('Humidity: %3.1f %%' %hum)
        ssd.show()
    except OSError as e:
        print('Failed to read sensor.')
```

```
from machine import Pin
from ssd1306 import
SSD1306_SPI, SSD1306_I2C
```

```
WIDTH = const(128)
HEIGHT = const(64)
# HEIGHT = const(32)
```

You will want to make sure that the WIDTH and HEIGHT constants are the same for your display (see below). I commented out the last HEIGHT line, since I have both 128x64 and 128x32 SSD1306 displays around, and want to be

able to swap quickly. Just so you know, if you are using a 128x64 SSD1306, you can still set the HEIGHT to 32. It shouldn't matter having a larger display using a smaller HEIGHT value. It doesn't work the other way around though. The original code was written for the Pyboard microcontroller, so I've removed that code from that shown below, but it still is in the repository file. Notice that I've commented out the original setup function definition and replaced the soft parameter set to False. This keeps us from using the software I2C library. I have done that, since we're be forcing the I2C pins to SDA on pin 4 and SCL to pin 5. I've included the SPI code here, just to provide you a landmark for the code.

This is to make sure that we all use the same pin values for the I2C. You will probably get a depreciation warning (I'm not using the ESP8266 Micropython firmware 1.16 from 2021-06-18), and usually you can just ignore the warning for now.

All the other code files are support files. You should have them from the previous projects, but I've included them in the github

repository. You can find it at https://github.com/gregwa1953/FCM-175_MicroThisMicroThat. Ensure you place them all on your ESP8266 board.

I've kept the article for this month fairly short, since my Python article ran so long. I want to make sure that the other authors have room for their good work.

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.thedesignatedgeek.xyz.



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UBPORTS DEVICES

Written by UBports Team

Ubuntu Touch is the privacy and freedom-respecting mobile operating system by UBports. Today we are happy to announce the release of Ubuntu Touch OTA-20, our twentieth stable update to the system! OTA-20 will become available for the following supported Ubuntu Touch devices over the next week:

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 2XL
Google Pixel 3a
Huawei 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 2
OnePlus 3 and 3T
Oneplus 5 and 5T
OnePlus 6 and 6T
OnePlus One
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
Vollaphone X
Xiaomi Mi A2
Xiaomi Mi A3
Xiaomi Mi MIX 3
Xiaomi Poco F1
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-20".

WHAT'S NEW?

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

We implemented notification LED support for devices with Halium 9 base. If your device is still not blinking, keep in mind that many recent devices do not have a notification LED anymore:

Vollaphone and Pixel 3a cannot blink physically for example. Also vibration works now for incoming notifications on those devices.

We added support for Khmer and Bengali fonts to support users from these locales a bit better.

It is now possible to define a custom notification sound. Like with ringtones one can now select any accessible audio file to be played when a new notification arrives. Let's annoy our co-workers with style!

A few new devices were added to the range of installable devices again: Xiaomi Redmi 9 and 9 Prime (lancelot), Xiaomi Redmi Note 9 (merlin), Note 9 Pro (joyuese), Note 9 Pro Max (excalibur), Note 9S (curtana), Xiaomi Poco M2 Pro (gram) and Pixel 2 (walleye). The Pixel 2 has some battery lifetime issues though, so it might not be fully ready for your daily drive.

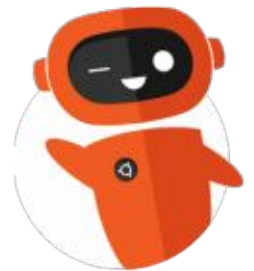
BUGS AND ISSUES FIXED

A regression bug prevented the

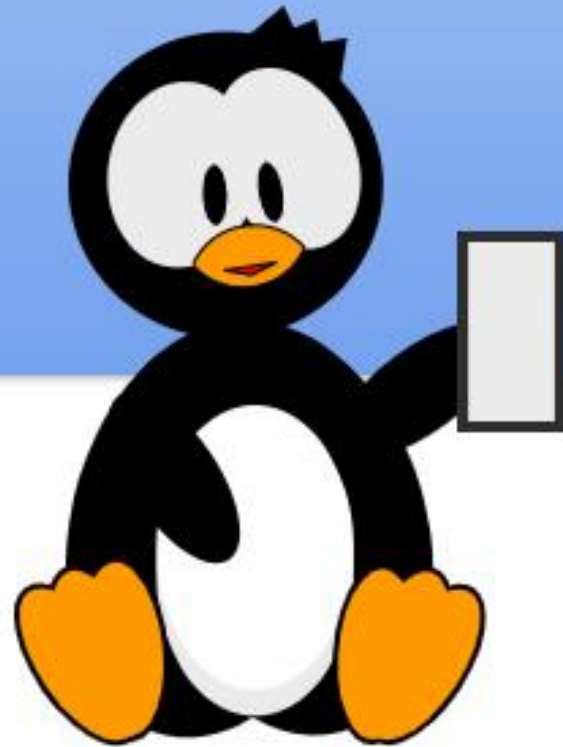
so-called trust prompts to appear when an App requested certain hardware access for the first time: Microphone, location, camera access should now pop the usual dialogs. Note that the camera-app itself currently has always access to the camera, as this trust prompt needs fixes in the Halium/Android layer, and that has been postponed for the moment.

A bug in our CalDAV layer prevented sync with servers that used a Let's Encrypt certificate due to their recent cert revocation in their cert chain. That's now fixed.

A rare and weird telephony bug: Users of the Vollaphone could not reject a second incoming call without terminating the current one also. Thanks to HalloWelt Systeme for fixing that for us!



The Daily Waddle



HOW DO I SET MY
PEDOMETER APP TO
WADDLE?





MY OPINION

Written by ...

NOTHING TO SEE HERE.

Submit your stories and opinions to:

ronnie@fullcirclemagazine.org.



HOW-TO

Written by Ronnie Tucker

Write For Full Circle Magazine

GUIDELINES

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

RULES

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

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

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

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

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

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

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

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

TRANSLATIONS

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

REVIEWS

GAMES/APPLICATIONS

When reviewing games/applications please state clearly:

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

HARDWARE

When reviewing hardware please state clearly:

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

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





REVIEW

Written by Adam Hunt

1 4 October, 2021 was the date that Kubuntu 21.10 was made available for download. This new, “standard” Kubuntu release will be supported for nine months, until July, 2022. Kubuntu 21.10 is also the last of three releases before the next Long Term Support release comes out on 21 April, 2022.

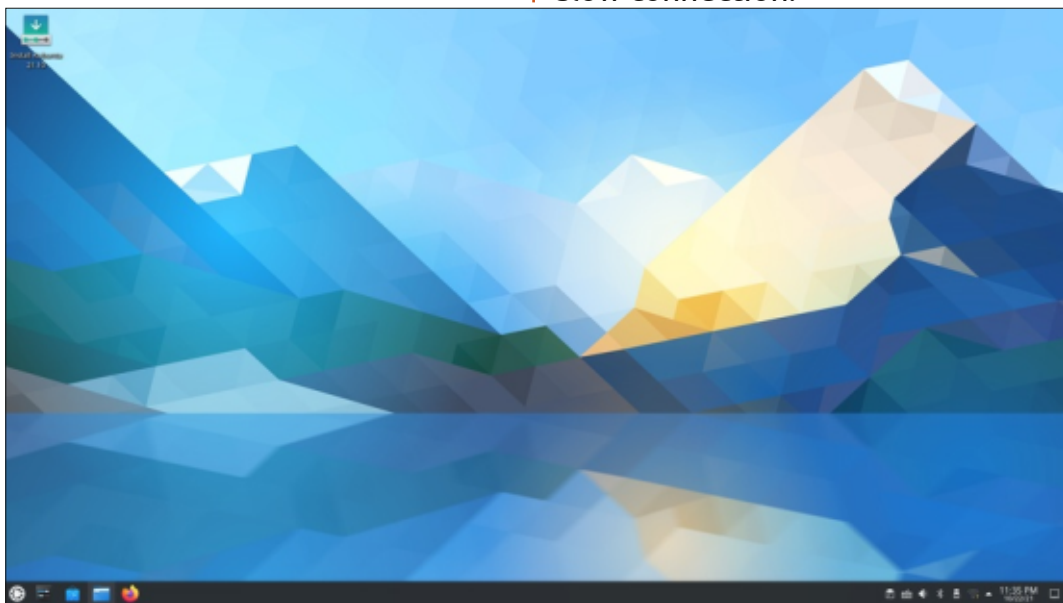
This is Kubuntu’s 34th release, and the 13th with the KDE project’s Plasma 5 desktop which is based on the Qt toolkit. With its first release in 2006, Kubuntu is definitely a “mature project” and has a

dedicated user base.

BOOTING IT UP

I downloaded the ISO file from the Kubuntu website via BitTorrent, and completed a SHA256 check on it to make sure that the downloaded file was correct.

This version of Kubuntu is the biggest download so far at 3.1 GB, for the ISO file. It is bigger than any other Ubuntu family ISO, including Ubuntu 21.10 itself (which is 2.9 GB), so be warned if you have a slow connection.



I used UNetbootin to write it to a USB stick, as it conveniently leaves the stick in FAT32 format. Kubuntu 21.10 was 3.2 GB when unpacked by UNetbootin and with whatever headroom was required, would not fit on a 4 GB USB stick, so I had to use a 15 GB stick instead.

I tested Kubuntu 21.10 on new, high-end hardware, with a 4.7 GHz quad-core processor and 32 GB of RAM. It ran very smoothly and fast, as would be expected.

NEW

Kubuntu 21.10 uses the Qt 5.15.2 toolkit – the same version used on the last release, Kubuntu 21.04. The desktop, however, is the updated KDE Plasma 5.22 which has some refinements incorporated. The main menu system works very well in this new version, as it did in the last one. Both menu versions perform much better than earlier versions.

Also updated are KDE

Kubuntu 21.10

Frameworks 5.86 and KDE Gear 21.08 which are the collection of KDE utilities. Like all of the other Ubuntu 21.10 flavors, Kubuntu 21.10 uses the Linux 5.13 kernel which has support for newer hardware.

While Ubuntu has been using the Wayland display server for the last two releases, Kubuntu and the other Ubuntu official flavors have retained X11, leaving the Ubuntu developers to debug Wayland first. Kubuntu 21.04 first offered Wayland for testing, but with a warning that it was only for testing use. In Kubuntu 21.10, Wayland is still available as an option at boot-up but no longer carries the warning.

Every new Kubuntu release gets a fresh default wallpaper, and Kubuntu 21.10 is no exception. This time the new artwork is entitled Altai and is by Alesya Khoteeva. It features a geometric abstract interpretation of Asia’s Altai Mountains which sit in the area where the borders of Russia, China, Mongolia and Kazakhstan meet.

SETTINGS

Kubuntu boasts the largest variety of user settings in the Ubuntu world, enabling users to make it look and work almost any way they want.

Kubuntu 21.10 has the same themes and settings that 21.04 offered:

- Four global themes: Breeze, Breeze Dark, Breeze Twilight, and Kubuntu
- Six Plasma styles: Air, Breeze, Breeze Dark, Breeze Light, Kubuntu, and Oxygen
- Two window decoration themes: Breeze and Plastik

- Six color schemes: Breeze, Breeze Dark, Breeze High Contrast, Breeze Light, Oxygen, and Oxygen Cold
- Eight icon sets: Adwaita, Breeze, Breeze Dark, Humanity, Humanity-Dark, LoginIcons, Ubuntu-Mono-Dark, and Ubuntu-MonoLight
- Eight cursor styles: Breeze, Breeze Light, KDE Classic, Oxygen Black, Oxygen Blue, Oxygen White, Oxygen Yellow, and Oxygen Zion

These are the options that come with Kubuntu 21.10, but most of the settings pages also offer downloads of many more themes and customizations which can be added.

Kubuntu 21.10 also has an installed library of 67 desktop

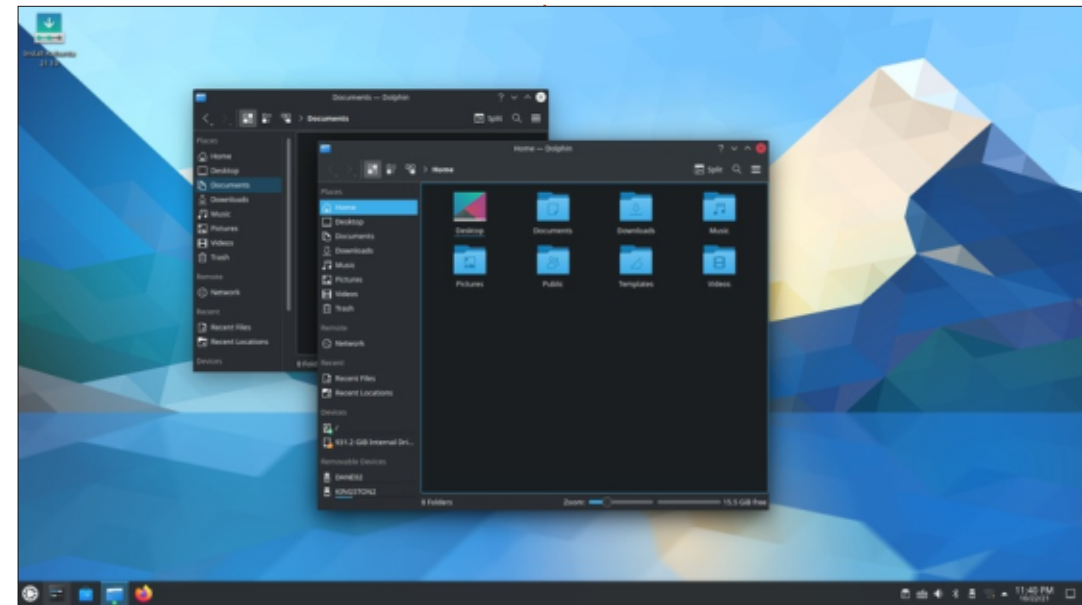
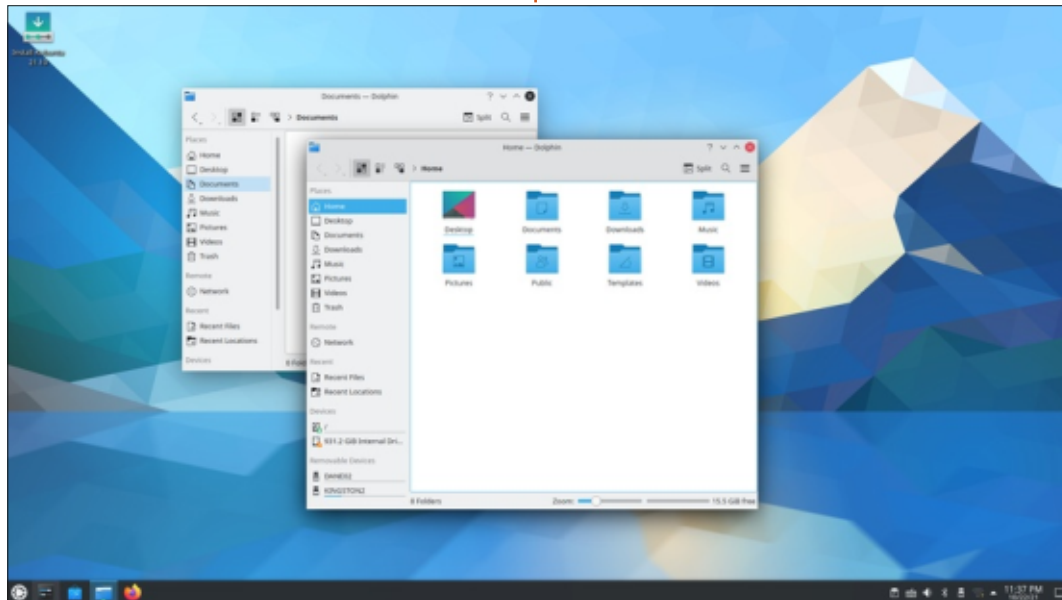
widgets, small programs that provide extra functionality on the desktop. No wonder the ISO file is so big! Of course, there are hundreds more widgets that can be downloaded as well.

The Kubuntu philosophy is to give users as many choices as possible in how it looks and works. This puts Kubuntu at the opposite end of the spectrum from Ubuntu 21.10 which offers very little user customization. While Ubuntu feels more and more like an enterprise distribution, Kubuntu feels like it was designed by developers, for developers.

Some of the applications included with Kubuntu 21.10 are:

- Ark 21.08.1 archive manager
- Discover 2.1.2 software store*
- Dolphin 21.08.1 file manager
- Elisa 21.08.1 music player
- Firefox 93.0 web browser
- Gwenview 21.08.1 image viewer
- Kate 21.08.1 text editor
- Kcalc 21.08.1 calculator
- KDE Partition Manager 21.08.1 partition editor
- Konsole 21.08.1 terminal emulator
- Kmahjongg 21.08.1 game
- Kmines 21.08.1 game
- Konversation 21.08.1 IRC client
- Kpatience 21.08.1 game
- Ksudoku 21.08.1 game
- Ktorrent 21.08.1 bit torrent client

APPLICATIONS



REVIEW

LibreOffice 7.2.1 office suite, less
only LibreOffice Base database
Muon 5.8.0 package manager*
Okular 21.08.1 PDF viewer
Plasma System Monitor 5.22.5
system monitor
PulseAudio 15.0 audio controller
Skanlite 21.08.1 scanning utility
Spectacle 21.08.1 screenshot tool
Startup Disk Creator 0.3.11 (usb-
creator-kde) USB ISO writer
Thunderbird 91.1.2 email client
VLC 3.0.16 media player

* indicates same application version
as used in Kubuntu 21.04.

As can be seen from the lack of
asterisks, most of the applications
included are updated versions from
KDE Applications 21.08, with no
hold-overs at all from Kubuntu
20.12.

This release removes the
KsysGuard system monitor

graphical application, which has
been replaced by the new Plasma
System Monitor.

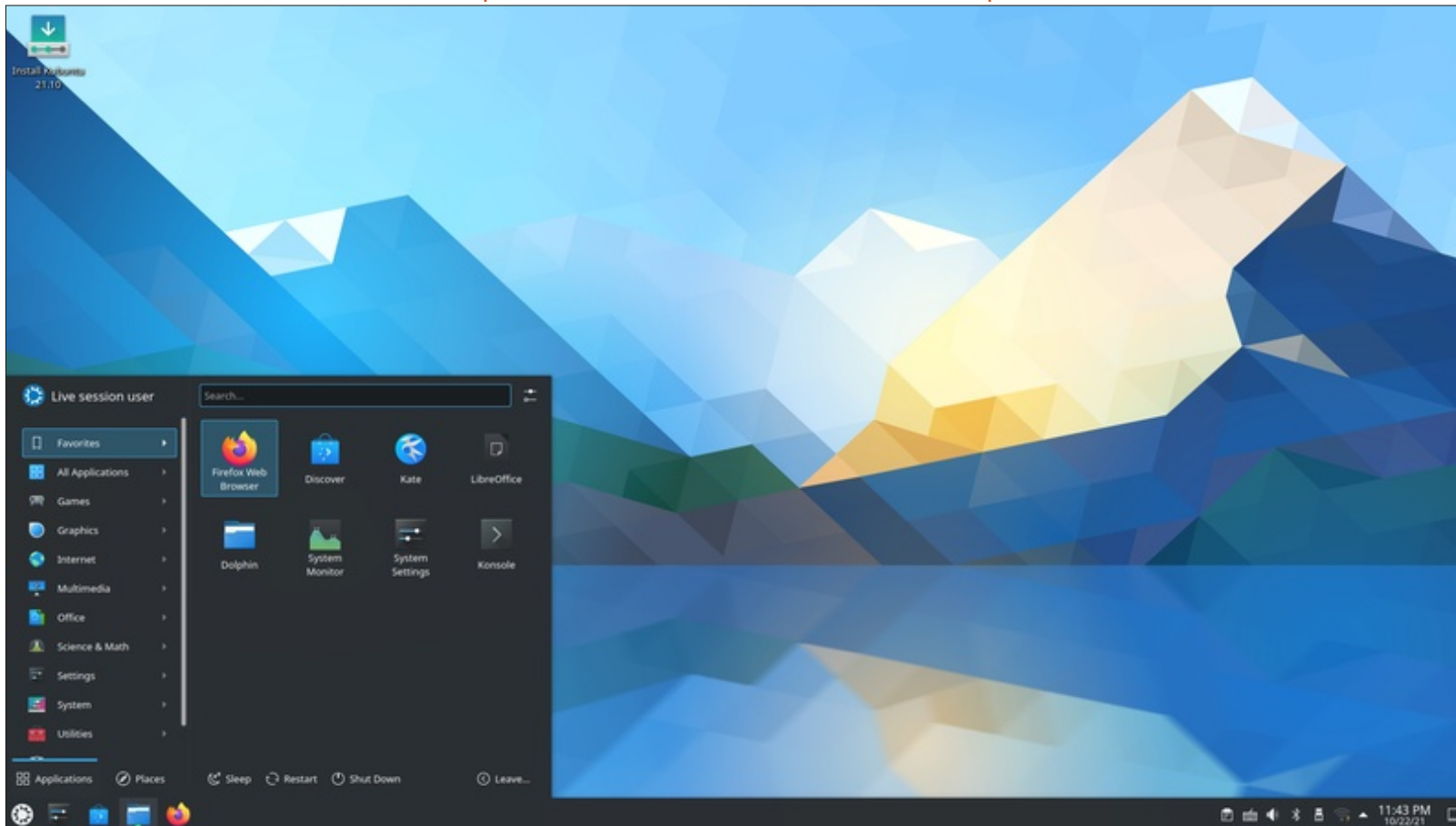
Since the Plasma 5 desktop is Qt
toolkit-based, all the included
applications are Qt-based as well,
with the obvious exception of the
Firefox web browser which is GTK-
based. The hoped-for Qt-based
replacement web browser, Falkon,
which is an official KDE project, has
not seen a new release in over two

and a half years, making it pretty
much “abandonware” now.

Like both Lubuntu 21.10 and
Xubuntu 21.10, Kubuntu 21.10
provides the Firefox web browser
as a .deb package and has not
moved to using a snap package, like
Ubuntu 21.10 has done. As with
Lubuntu and Xubuntu, it will be
interesting to see what the
Kubuntu developers do for future
releases, as the .deb version of
Firefox is slated to disappear from
the repositories at some point in
the future, leaving only the snap
version available.

As in past releases, Kubuntu
21.10 does not include a webcam
application, an image editor or
video editor, by default, although
there are many options in the
repositories, if needed. KDE's Qt-
based Kdenlive would probably be
the best choice in a video editor –
both for its functionality and
integration into the Plasma 5
desktop.

Kubuntu also no longer comes
with a default CD/DVD burning
application installed. Optical drives
are pretty much obsolete
technology these days, and new
computers have not come with



REVIEW

them for many years, so it makes sense not to include a default CD/DVD burner application. If you do still have an optical drive that you use to burn CDs or DVDs, then it is easy to install a burner application from the repositories, the KDE, Qt-based K3B application being the most obvious choice.

The Kubuntu 21.10 version of LibreOffice 7.2.1 is supplied complete, lacking only LibreOffice

Base, the office suite's database application, which can be installed if needed.

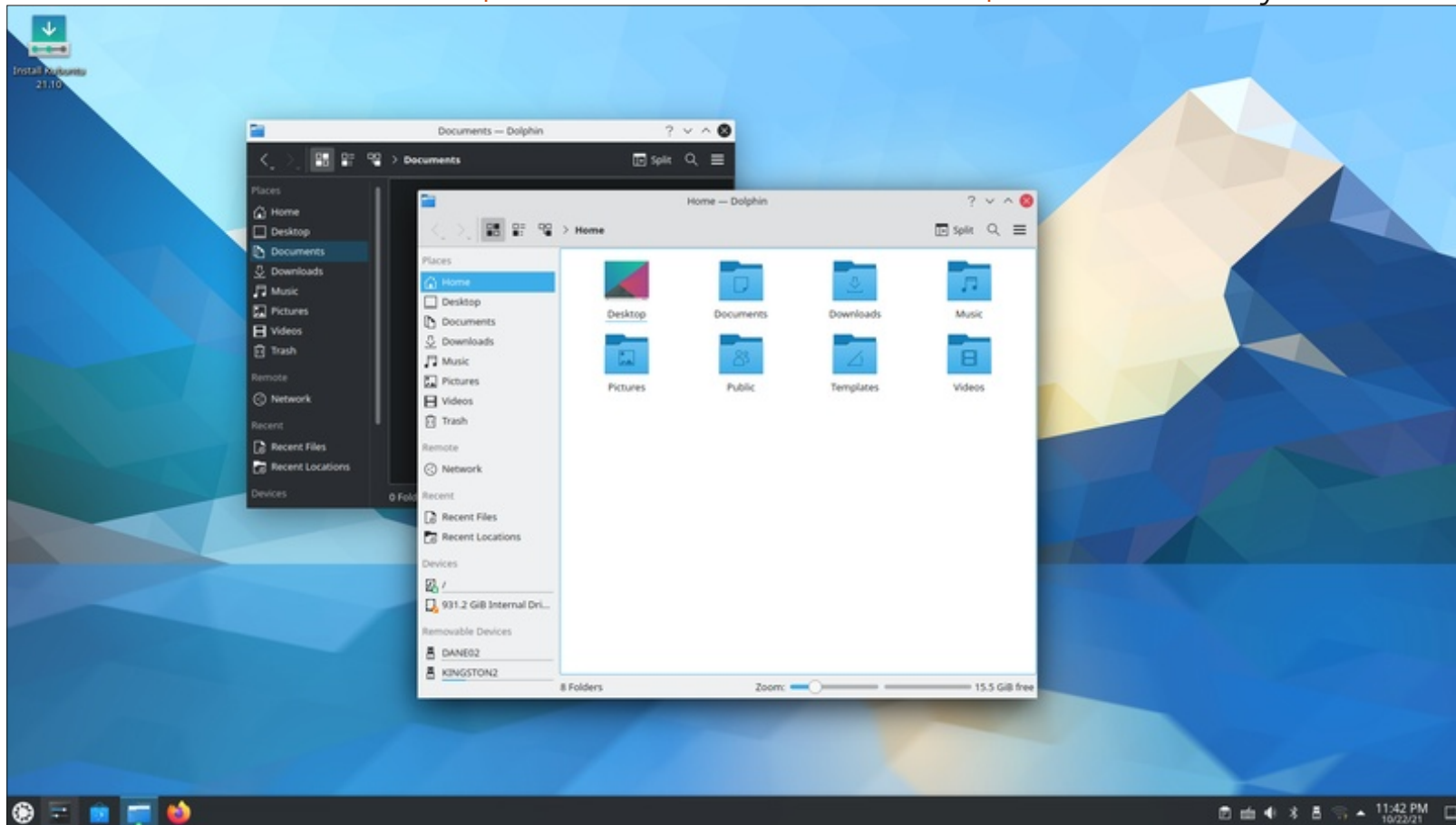
The Kate 21.08.1 text editor continues to be worth noting. It has syntax highlighting and is very customizable, with many highlight color schemes. Kate also has spell-checking right out-of-the-box which is a welcome feature, putting it in the same class as Gnome's gedit. Neither text editor requires any

setup to get to work coding or writing web pages.

CONCLUSIONS

Kubuntu 21.10 is another strong, polished release. In this development cycle since the last LTS release, only a few careful changes have been made, giving the message that both the developers and the users like how Kubuntu is these days and don't see

any need for big changes. Expect the LTS release, Kubuntu 22.04 LTS, due out on 21 April, 2022, to be very similar to Kubuntu 21.10, just with three years of support, instead of nine months.



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



REVIEW

Written by Erik

Bluemail

Website: <https://bluemail.me/>

Price: Free for individuals

Blurb: "BlueMail, by Blix, a free, beautifully designed, universal email app, capable of managing an unlimited number of mail accounts from various providers, allowing for smart push notifications and group emailing, while enabling personalization across multiple email accounts. The BlueMail app connects directly to your mail server and is the perfect replacement for your stock email app."

INSTALLATION

Installing Bluemail is as easy as a one-click Snap or smaller .deb-file. On my Ubuntu 18.04 installation, I needed no dependencies. Bluemail is under active development and updated regularly.

Bluemail is free, but not open source. Bluemail gives you: Gmail, yahoo, hotmail, outlook, comcast, aol, live msn, att, charter, sbcglobal, verizon, cox, icloud, mail, gmx, bellsouth, roadrunner and earthlink - supported as pre-configured.

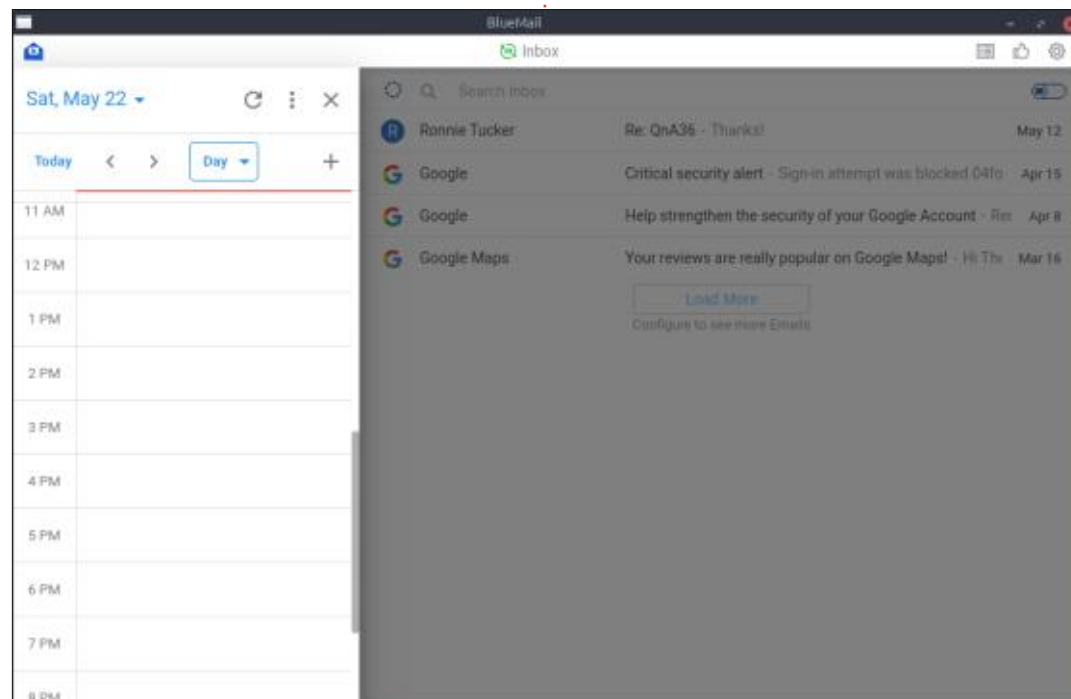
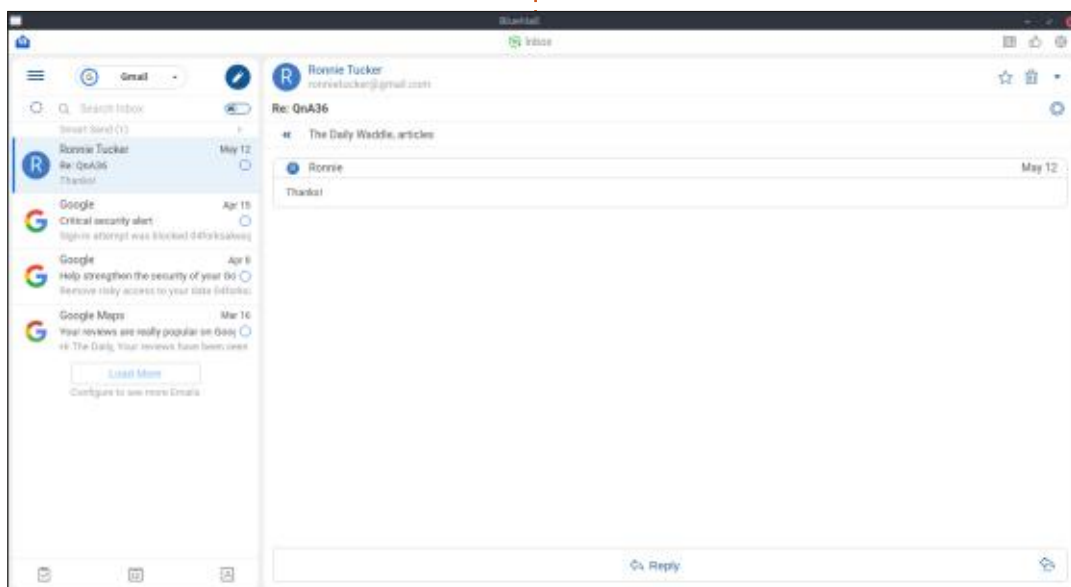
Know that it also supports manual setup.

There is nothing fancy about Bluemail; it simply gets the job done. There are settings for you to fiddle with, but overall it is WYSIWYG. It "just works". Bluemail hooks into your email, so there is none of that crap where gmail – for instance, will lock your accounts because an "unknown" mail program accessed your account, or Yahoo mail just stopped coming

through.

You have three views, compact, default and split view – though in compact view, the compose icon is messed up. In essence, all these views do is mix up the three panes, hiding one. The integrated calendar is simply a sliding panel, which is nice for a quick view of your agenda.

BLUEMAIL FEATURES



REVIEW

Unified Inbox: You are able to see all your mail accounts in one place.

Personalized Inbox: Claims to be people-centric. There is a switch for “all email” and people-only.

Powerful Email Clustering and Groups: Honestly, I didn’t find these features, probably in the non-free version.

Share Email: Not in the free version.

Get stuff Done: Allows you to mark emails for later. Read today,

read later, or mark as done (this is hidden behind ellipses). Then in your tasks.

The Dark theme is really easy on the eyes after the sun goes down. It is a very dark grey, with orange highlights.

You can have notification sounds if you like.

Tasks is named “your later board”, and gives you a three-pane layout, today, later, and done. You can also add your own columns to sort your todos into.

BlueMail is a popular app on mobile phones, on Google Play, it has millions of downloads, and it is not hard to see why. If you wanted a good Outlook alternative, BlueMail is most likely for you, the interface is clean and uncluttered, and a breath of fresh air for Linux email clients (which have traditionally been stuck in 1991).

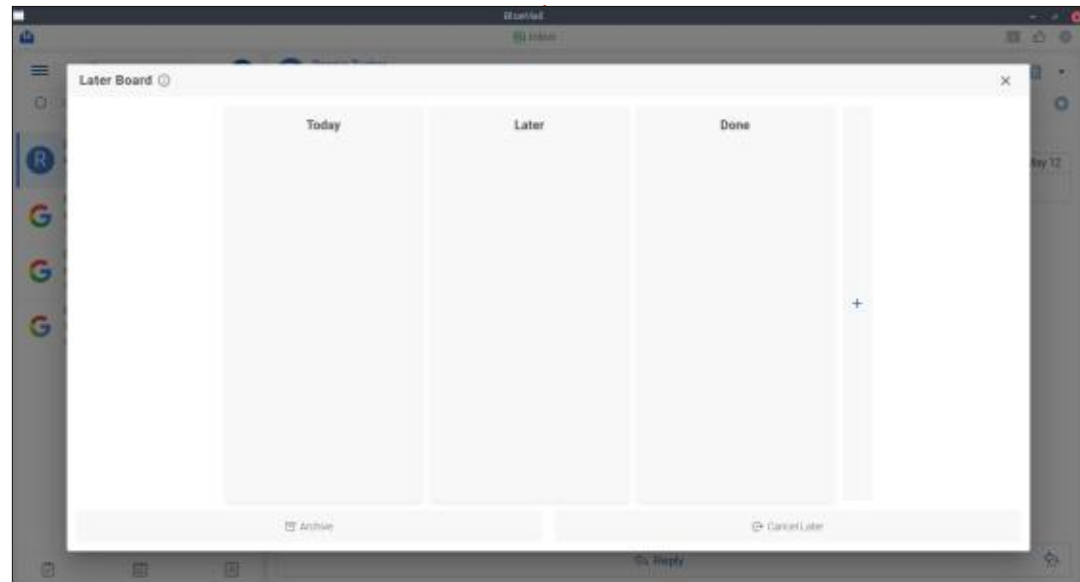
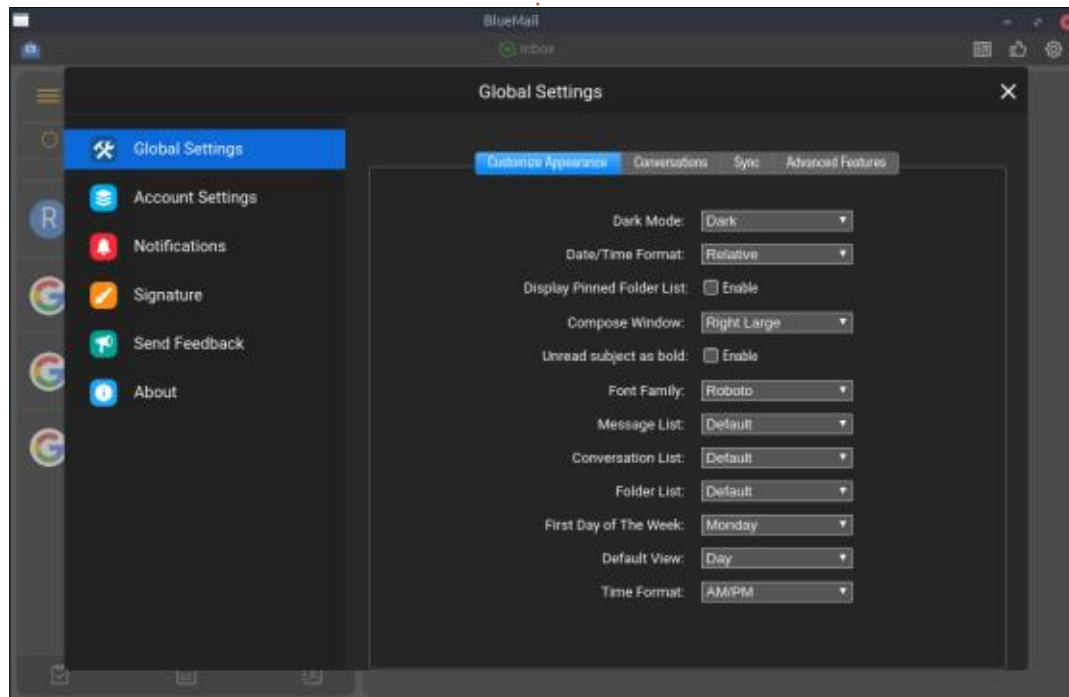
When minimised, it sits in the taskbar and quietly monitors your email accounts every few minutes. Running nethogs, one can see when it polls your email server.

I have been using it for the last few months and have not had any issues. I can recommend it to anyone who just needs their email

to be available and ready.



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





Q&A

Compiled by EriktheUnready

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

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

My boss recently did interviews for technicians and proceeded to ask 20-year old applicants what ISDN is. These kids did not grow up with it, they don't know it, and none of their generation uses it any more. He could just as well have asked how the Mayans built Chichen Itza! (look up "how kids react to rotary phones" on YouTube to understand what I am saying / trying to say). Things deprecated, asking a new Ubuntu user what 'ifconfig' is will probably get you a blank stare. Yes,

it is basically irrelevant, but there also may come a day when you need it (but, not in the way that you have candles in a cupboard). I am looking at you, COBOL. Mainframes are still relevant today – just for the volume of work they can process effortlessly – and the programming language of choice is COBOL. So ask yourself, why would the big players spend on mainframes with Linux and COBOL instead of C++ Windows and cloud? Rescue those old machines with Linux, learn the ins-and-outs of your operating system. It may not be the year of Linux on the desktop, probably ever, as manufacturers only write drivers and applications for Windows, and Linux is forever playing catch up... via a programmer wanting that feature to work on Linux, but in other areas it still reigns supreme. With everyone having Linux in their pockets (with Android), the time has never been better for you to get to grips with Linux. Looking for a job? Learn COBOL. You may just get a good job at a Fortune 500 company! ISDN on the other hand has one foot in the grave, and the

other on a banana peel. Let us know if I am wrong.

Q: I have a Huawei LTE router and my Lenovo laptop has Ubuntu 20.04. If I put the laptop to sleep, or I disconnect from the network and try to reconnect, it won't. I can turn off WIFI and turn it back on, to no avail. I have to get up, go to the room, pull out the power of the router, and then it will reconnect. It is becoming a chore, how can I fix this? I did not have this issue with Ubuntu 16.04.

A: Turn off IPv6 for starters, it is on by default. It lengthens the connection time considerably if you leave it on and the router uses IPv4. That said, you may need to update your router firmware, as Ubuntu moves forward, it may not always be 100% backward compatible as things are removed for security sake. You can test by doing the same thing at a friend's house and see if the problem follows.

Q: Hey, is there some tool I can use to accurately measure GPU usage on Linux? I don't care if it is AMD or NVIDIA or even INTEL, as long as it works.

A: Sorry to disappoint, but there are none. There may be something in the enterprise space, like one of the workload managers, as these days people use compute modules more and more, but it will not be free.

Q: I want to ask why my upgrade from Ubuntu 2010 to 2104 turned out so crappy, with things not working?

A: My question is, if you are testing a distro's test/unstable/whatever release, you should be an expert or semi-expert in Linux, if you are not, why do you need those testing versions? For day to day use, you should rather stick to the LTS releases, if you do not want issues. Upgrades are finicky, so why not install fresh? It takes like 15 minutes?

Q : MacOS videos on YouTube always look so cool with all their synths and plugins, but it costs a lot of money. Can I get something like that with UBUNTU? I still use 18.04, for now, but if I need to upgrade to get better stuff, I will.

A : Keep your eyes on FCM as that's a great idea for a series of articles. It may not run immediately, but I will start it immediately. Ubuntu Studio may be a good start for you or KX Studio.

Q : I have installed Ubuntu Budgie 20.04 on my ageing PC. It has a Nvidia 730 display card or 630, I can't remember, and 6GB of RAM. <image removed> It says I can clear unneeded packages, but if I do that I can only see 1024x768, and the Nvidia control panel does not open. The only way to fix it is to reinstall.

A : I am not sure what you are asking, just know that things like 6th generation to 7th generation in Linux may mean one driver works and one does not, so it is not trivial as you say, or like in Windows. If cleaning unneeded packages breaks your system, don't

do it, it will not cause any issues just "lying there".

Q : I am dual booting Windows 7 Ultimate and Ubuntu 16.04. Is there a way for me to access files in Ubuntu from Windows? I know I can access Windows files from Ubuntu, but I'm not sure how to reverse that?

A : Diskinternals has a program called Linux Reader. I am not sure if it is free or trial, but I recall using it on Windows 7 many moons ago.

Q : Thank you for helping me, I have followed youtube tutorial for making windows USB from the iso file. It says disks make filesystem fat and mount iso and copy files. This is not working for the boot. How do I make it?

A : For Windows 10 to boot these days, you need NTFS to start, you also need something to tell the BIOS that it should boot the USB thumb drive (usually a separate partition with boot files). There is a utility called WoeUSB you can try, I have not used it, so I cannot say

how effective it is.

Q : How can I add unraid to Ubuntu to manage my four 4GB drives please?

A : Unraid is a Slackware based distro, basically, so it will manage your drives as a distribution, but it is not Ubuntu and cannot be "added" to Ubuntu.

Q : Is there a way to know which distributions are based on Ubuntu, current and past?

A : Well, easiest I can think of, is go to Distrowatch, do an advanced search and tick based on Ubuntu. It should bring up distros that are alive and dead.

Q : Why can't my gnome extensions work in Ubuntu 21.10? I don't want to downgrade again.

A : The short answer is version numbers. Gnome extensions from the website may not be updated yet. You need to decide if you want bling or stability, if it is the latter, you need to use LTS

versions.

Q : I need help. I have a Xiaomi redmi 9A android phone, but when I connect it to Ubuntu 20.04, I cannot see all my stuff. I want to transfer music to it and not dump it in my pictures folder.

A : Most phones have a setting for transfer mode, eg, MTP, PTP, etc. You need to find yours in your settings and change it to the appropriate mode for file transfer. This is a phone issue, not an Ubuntu issue.

Q : My brother and I share a computer. Sometimes I see drwxrwxrwx jason jason 4096 Jun 24 11:02 myfiles/ What does it mean?

A : I am not sure what your question is; when you use the ls command, it will list the files and folders where you are in the tree. The "d" at the beginning of the line means it is a directory, and you can see it by myfiles being followed by a slash. 'rwx' is for read, write, and execute, and it is repeated for user, and group, and others. The 't' is the sticky bit. The 4096 is the amount

of bytes it takes up.

Q : I am adding my siblings to new groups, but it is not taking effect. I want them to access only certain things. I click manage groups in users and click remove, but they still have access.

A : Group memberships are only refreshed at login. You need to log them out first, before it will take effect.

Q : So why do you not use gnome-latex for tutorial?

A : Everyone has their favourite, would you like me to use it?

Q : My question is more about Linux than specifically Ubuntu, why do u have mount and umount and not unmount?

A : Posix compatibility on legacy systems, the commands are only 6 characters long. If it gives you grief, simply alias it!

Q : I was researching my font error on askubuntu and I put

my page size to 50. Then when I click the next page, the size reverts to 15. I am using Chrome not Chromium on Ubuntu 20.04. I tried googling it, but I can't find anything.

A : I cannot say I have seen that, but when you click on a page, just add &pagesize=50 at the end of the url? See if the behaviour follows, say in Opera/Brave?

Q : I have a lot of SD cards that I dump photos from and they are from different cameras, how can I know what the file system is, on the one I have mounted? Like FAT or EXFAT. Sorry, my Ubuntu version is 20.04 on a Clevo laptop. The cards are mostly Toshiba, with a few SanDisk ones.

A : When you navigate your filesystem, you will see '.' and '..' meaning: THIS directory and up a directory. You can use that same notation in a command; df -T . as the "." means current folder, so just navigate to each one and run the command.

Q : How can I launch Thunar in admin mode?

A : I am going to assume you mean as root? Simple, use pkexec Thunar and type in your password.

Q : I am experimenting with my bash prompt. Instead of me logging in and out the whole time, can't I just preview the damn thing? I just wanna make it my own, without looking like all the same. I'll move to zsh when I have bash pinned down, so don't say I need zsh.

A : I would not tell you that. There is no man page for it, but what you are looking for is "source". When finished editing your .bash_profile, open a new terminal and type: source <path to bash_profile> - In my case it is: source ~/.bash_profile

Q : Why does my top only show CPU(s) for one CPU? I just got a New Ryzen 7, and I want to see all the CPU's and maybe send a screenshot to a friend. Hehe. I saw this: <image removed> on a video, so I know it's possible. Or is it just an Ubuntu thing?

A : If you open the man page for top, you will see right at the bottom of the command-line options (the very last one) is "-1". You can press 1 while it is running to show all your glorious CPU's and make us plebs jealous.

Q : If I open a jar file with engrampa, I can see all the files and folders within, but as soon as I try to open any of the folders inside, it hangs up the process. It doesn't matter what folder, it just hangs. I know the file is good, it's just a simple flappy bird clone that works.

A : I cannot tell you for sure, but I am sure it is how a .jar-file is made, rather, it may be compressed at the end, but have a different structure within. Thus, Engrampa may be able to look and see the zip part, but not more.



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



Website: <https://www.noprophet.com/>

Price: 24.99 USD on GOG and Steam

Blurb: *"Prepare your decks and go on a pilgrimage through the wasteland! Nowhere Prophet is a unique single-player card game. Travel across randomly generated maps, and lead your followers in deep tactical combat. Discover new cards and build your deck as you explore this strange, broken world."*

"Survive the wastes and find a new home for your people. A roguelike with tactical, card-based combat."

I am not big on card-based battle games, probably because I never invested any time in learning any of them. There is usually a complex set of rules you need to remember, and you need to find ways to stay within those rules and still win the game. One of the telegram groups I joined posted a tune, very haunting and trippy, and I had to know more. That led me to this game.

At first, the artwork put me off. It is

the kind I don't like. It is sort of similar to the Banner saga / Darkest Dungeon, but worse. Aesthetically, it may please someone, but I am not that person; if it appeals to you, great. So - I may have been a bit negative in the beginning, until I started playing...

Just so you know, this is not Pac-man, where you can just start playing. You need to read the rulebook (it is prominently in the menu), or be punished... Severely! Just like Darkest Dungeon, it is ugly, with tough gameplay, and, as Jaffar would say, "a diamond in the

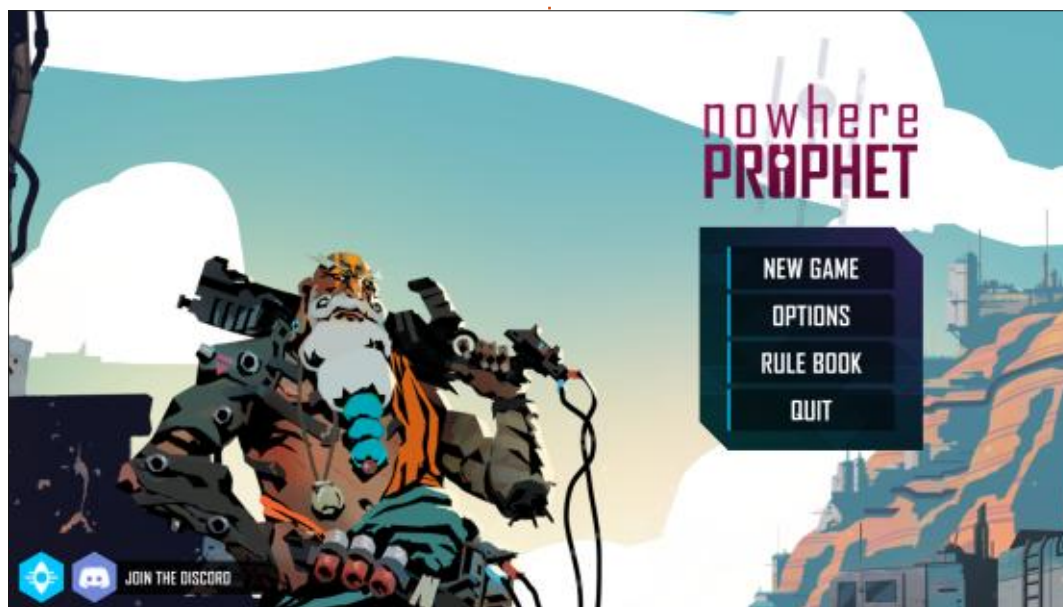
rough". The game specs are pretty low, and it runs on my potato laptop at full graphics. There is a lot to like and a lot to dislike, let's get started:

You need to navigate a map to reach your goal, to make it to the next section. There are, however, only a few branches and routes you can take. When I say this, I don't mean that you cannot go to each point, but you should not – for the risk of running out of food and hope. There are a lot of resources to keep track of and currently I am not 100% sure if the risk / reward

thing butters my buns.

Each of the points on the board leads you to an encounter – that could be positive or negative, depending on how you handle it. The game gives you multiple options here, and the choice is yours, as they say on TV. Though I understand that this is a card game first and story second, forging relationships with the characters you meet does not benefit you. This was something I did not like, as I like to be engaged in my games.

Also, how cool would it not be for the Fremen to come dashing down a dune? I also have to mention that there needs to be more cards, the graphic for the gang leader with the cigarette in the mouth, that you just killed, will be the same portrait for the beggar you just fed. The conversations seem to have a basic pattern that you can learn. Your cards are your followers, so you need to collect them from towns and encounters, but you need to tread a thin line here, as food is not in abundance. The same can be said for ability cards. You need to



acquire as many as you can, but you will find that some cards just don't do anything. That is because the buff or debuff does not work with the target, but you don't know that until you play it. A little circle with a line through it would have sufficed. Wasting cards like this grates my gherkin (any waste actually), and is one of the reasons the game is interesting, but not fun to play. The hard-as-nails part is great, for a change, but it is a bit of a party-pooper in the end. The card combat is intricate and brutal. The downers you get from dying all the time makes you not want to have another go at it, I'd rather do something happy. So there is re-playability, but not that you would

want to immediately. This is where the game resembles Darkest Dungeon even more than just the artwork. I don't want to play that any more either.

With that, back to the music. I think this is the main attraction for me, as the graphics just feel iffy. Do yourself a favor and grab the OST with the game. The wallpapers are nothing to write home about, and the art book actually will give you some insights into the game, but also nothing to write home about. The sitar features heavily in the music and notes are drawn out creating a feeling of space and adventure, suiting this game perfectly, very much like the music

in Fallout did for that game. (minus the Inkspots). Have a listen here: <https://www.youtube.com/watch?v=Yuh4ozopEu8>

I am seriously in limbo here: 50 / 50 – 50% I like and 50% I don't. A game needs to be fun, and, at the end of the day, this is not, for multiple reasons. Challenging, yes, interesting, yes, emotional, yes, even the graphics can grow on you, but the element of fun is missing.



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





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

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

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

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



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