



# Full Circle

THE INDEPENDENT MAGAZINE FOR THE UBUNTU LINUX COMMUNITY

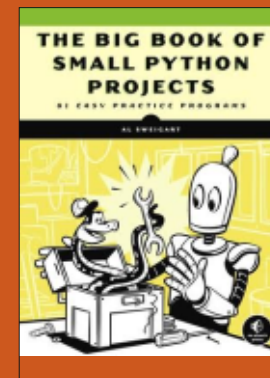
ISSUE #169 - May 2021



Photo: Jung-nam Nam  
(Flickr.com)



## BOOK REVIEW



## USB3 ON USB2 GETTING USB3 HARDWARE RUNNING ON OLD USB2

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HowTo



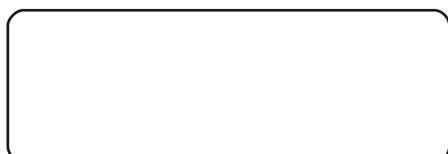
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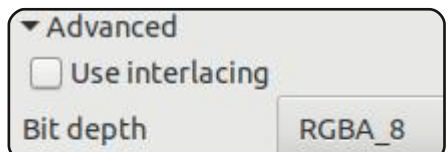
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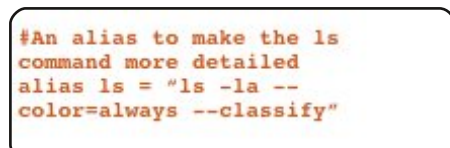


Graphics



# Full Circle

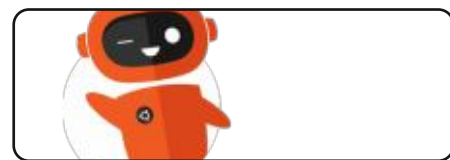
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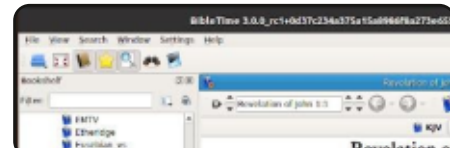
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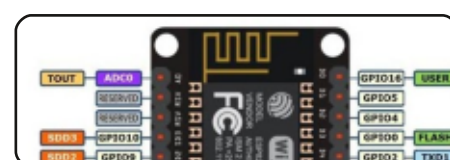
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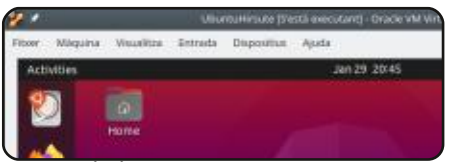
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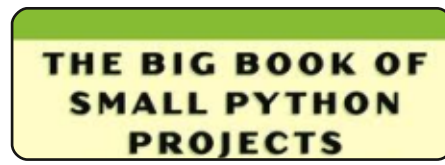
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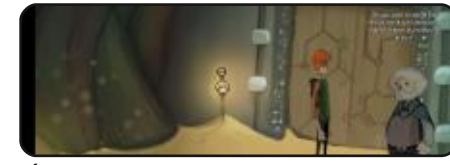
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## WELCOME TO THE LATEST ISSUE OF FULL CIRCLE

For this issue, we have the usual suspects; Python, Latex, Inkscape, LMMS, and an interesting piece on getting that shiny new USB3 hardware working on old USB2.

I'm sure you know, by now, that Ubuntu 21.04 is out. As per 20.xx we'll have reviews of the 21.xx series starting with Ubuntu itself. In the coming months we'll have reviews of Kubuntu, Lubuntu, Xubuntu, and the others.

Elsewhere, we have an interesting piece about how/why/when to use alpha software. Should you even use alpha software? Read on...

And, finally, the Ubports team has released OTA-17 of Ubuntu Touch. As ever, there doesn't look to be much in the way of changes, it's all under the bonnet tweaks. Although, there are a couple of new compatible devices.

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 link is: <https://t.me/joinchat/PujkVH1HopRKvfd3>. I hope to see you there. Come and say hello.

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

Ronnie

[ronnie@fullcirclemagazine.org](mailto:ronnie@fullcirclemagazine.org)



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## RELEASE OF GODOT 3.3:

04/25/2021

After 7 months of development, the free Godot 3.3 game engine has been released. It is 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.

The source code of the engine was opened in 2014 by OKAM after ten years of development of a proprietary professional-grade product that has been used to create and publish many games for PC, game consoles and mobile devices. The engine supports all

popular stationary and mobile platforms (Linux, Windows, macOS, Wii, Nintendo 3DS, PlayStation 3, PS Vita, Android, iOS, BBX), as well as web game development. Ready to run binaries available for Linux, Windows and MacOS.

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

## LINUX KERNEL 5.12 RELEASED:

04/26/2021

After two months of development, Linus Torvalds has released the Linux 5.12 kernel. Among the most notable changes: support for zoned block devices in Btrfs, the ability to map user IDs for filesystems, clean up outdated ARM architectures, eager write mode to NFS, LOOKUP\_CACHED mechanism for determining file paths from the cache, support for atomic instructions in BPF, debugging system KFENCE for detecting errors when working with memory, working in a separate kernel thread, NAPI poll-

ing mode in the network stack, ACRN hypervisor, the ability to change the preempt model in the task scheduler on the fly and support for LTO optimizations when building in Clang.

<https://lkml.org/lkml/2021/4/25/225>

## RELEASE OF AKIRA 0.0.14:

04/26/2021

After eight months of development, the Akira vector graphics editor was released. It is optimized for creating user interface layouts. The program is written in the Vala language using the GTK library and is distributed under the GPLv3 license. The interface is designed according to the guidelines prepared by the elementary OS project, and is focused on high performance, intuitiveness, and a modern look and feel.

The ultimate goal of the project is to create a professional tool for front-end designers, somewhat

similar to Sketch, Figma or Adobe XD, but focused on using Linux as the main platform. Unlike Glade and Qt Creator, Akira is not designed to generate code or work interfaces using specific toolkits, but rather more general tasks such as creating interface layouts, rendering and vector graphics. Akira does not overlap with Inkscape, as Inkscape is mainly focused on print design, not interface development, and also differs in its approach to organizing the workflow.

<http://akiraux.org/>

## FINIT 4.0 INIT SYSTEM AVAILABLE:

04/27/2021

After about three years of development, the release of the initialization system Finit 4.0 (Fast init) has been published. It is being developed as a simple alternative to SysV init and systemd. The project builds on the reverse engineering of the fastinit



init system used in the Linux firmware of EeePC netbooks and is highlighted for its very fast boot process. The system is primarily aimed at providing bootable compact and embedded systems, but can also be used for common desktop and server environments. Sample deployment scripts have been prepared for Void Linux, Alpine Linux, and Debian GNU / Linux. The project code is written in C and is distributed under the MIT license.

Finit supports SysV init-style runlevels, monitoring the health of background processes (automatically restarting a service in case of failure), executing one-time handlers, starting services taking into account dependencies and arbitrary conditions, attaching additional handlers to start before or after the service is executed. For example, you can configure a service to start only after network access becomes available, or after some other service, such as syslogd, has started. Cgroups v2 is used to set restrictions.

<https://github.com/troglobit/finit/releases/tag/4.0>

## FEDORA 34 LINUX DISTRIBUTION RELEASED:

04/27/2021

Fedora 34 is out. 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 are available for download. The release of Fedora Silverblue builds are delayed.

<https://fedoramagazine.org/announcing-fedora-34/>

## PALE MOON 29.2 BROWSER RELEASED:

04/27/2021

A release of the Pale Moon 29.2 web browser is now available. It is a fork of the Firefox codebase to provide better performance, preserve the classic interface, minimize memory consumption, and provide additional customization options. Pale Moon binaries are built for Windows and Linux (x86 and x86\_64). The project

code is distributed under the MPLv2 license (Mozilla Public License).

The project adheres to the classic interface layout, without switching to the Australis interface integrated into Firefox 29, and providing ample customization options. Remote components include DRM, Social API, WebRTC, PDF viewer, Crash Reporter, code for collecting statistics, parental controls, and people with disabilities. Compared to Firefox, the browser retains support for XUL technology and retains the ability to use both full-fledged and lightweight themes. Pale Moon is built on the UXP (Unified XUL Platform) platform, within which the Firefox components are forked from the Mozilla Central repository, free of bindings to the Rust code and not including the work of the Quantum project.

<https://forum.palemoon.org/viewtopic.php?t=26690&p=213782#p213782>

## BUDGIE DESKTOP 10.5.3 RELEASED:

04/28/2021

The developers of the Linux distribution Solus have unveiled their Budgie 10.5.3 desktop, which incorporates the labours of the last year. The Budgie desktop is based on GNOME technologies, but uses its own implementations of the GNOME Shell, panel, applets, and notification system. The project code is distributed under the GPLv2 license. In addition to the Solus distribution, the Budgie desktop also comes in the form of an official Ubuntu edition.

To manage windows, Budgie uses the Budgie Window Manager (BWM), which is an advanced modification of the base Mutter plugin. All panel elements are applets, which allows you to flexibly customize the composition, change the placement and replace the implementation of the main panel elements to your taste. Available applets include the classic application menu, task switching system, area with a list of open windows, viewing virtual

desktops, power management indicator, volume control applet, system status indicator and clock.

<https://getsol.us/2021/04/27/fashionable-gnome-forty/>

## GCC COMPILER SET 11 RELEASED:

04/28/2021

After a year of development, the free GCC 11.1 compiler suite has been released, the first major release in the new GCC 11.x branch. Under the new release numbering scheme, version 11.0 was used during development, and shortly before the release of GCC 11.1, a branch of GCC 12.0 had already been forked to form the next major release of GCC 12.1.

GCC 11.1 is notable for the transition to the default debug file format DWARF 5, the default inclusion of the C++ 17 standard ("-std = gnu++ 17"), significant improvements in support for the C++ 20 standard, experimental support for C++ 23, improvements related to the future C language standard (C2x) and new performance optimizations.

<https://gcc.gnu.org/gcc-11/changes.html>

## CALCULATE LINUX 21 RELEASED:

04/28/2021

A release of the Calculate Linux 21 distribution is available, developed by the Russian-speaking community, built on Gentoo Linux, supporting a continuous update cycle and optimized for rapid deployment in a corporate environment. The new release presents Calculate Container Games with a container for launching games from Steam. Packages were rebuilt by the GCC 10.2 compiler and packed using Zstd compression, the synchronization of Calculate Linux Desktop user profiles is significantly accelerated, the Btrfs file system is used by default.

The following distributions are available for download : Calculate Linux Desktop with KDE ( CLD ), MATE (CLDM), LXQt (CLDL), Cinnamon (CLDC) and Xfce (CLDX and CLDXE), Calculate Directory Server ( CDS ), Calculate Linux

Scratch ( CLS ) and Calculate Scratch Server (CSS). All versions of the distribution are distributed as a bootable Live image for x86\_64 systems with the ability to install on a hard disk or USB drive (support for 32-bit architectures has been discontinued).

Calculate Linux is compatible with Gentoo ports, uses the OpenRC init system and applies a rolling update model. The repository contains over 13 thousand binary packages. Live USB includes both open source and proprietary video drivers. It supports multibooting and modifying the boot image using the Calculate utilities. The system supports the Calculate Directory Server domain with centralized authorization in LDAP and storing user profiles on the server. It includes a collection of utilities specially developed for the Calculate project for configuring, assembling and installing the system. Tools are provided to create custom ISO images tailored to user needs.

<https://forum.calculate-linux.org/t/calculate-linux-21/10619>

## OPENSUSE LEAP 15.3 RC:

04/28/2021

OpenSUSE Leap 15.3, based off the basic set of packages of the SUSE Linux Enterprise distribution with some custom applications from the openSUSE Tumbleweed repository . A universal DVD of 4.3 GB is available for download (x86\_64, aarch64, ppc64les, 390x). The release of openSUSE Leap 15.3 is scheduled for June 2, 2021.

Unlike previous releases of openSUSE Leap, version 15.3 is not built by rebuilding SUSE Linux Enterprise src packages, but using the same set of binary packages as SUSE Linux Enterprise 15 SP 3. It is assumed that using the same binary packages in SUSE and openSUSE will simplify migration from one distribution to another, save resources on building packages, distributing updates and testing, unify differences in spec files and allow you to move away from diagnosing different package assemblies when parsing messages about errors.

<https://news.opensuse.org/2021/04/28/opensuse-leap-153-enters-rc-phase/>

## NEW VERSIONS OF SAMBA 4.14.4, 4.13.8 AND 4.12.15 WITH VULNERABILITY FIX:

04/29/2021

**B**ug-fix releases package Samba 4.14.4, 4.13.8 and 4.12.15 with the elimination of the vulnerability (CVE-2021-20254), which in most cases can lead to the collapse of smbd process, but in the worst-case scenario does not exclude the possibility of unauthorized access to files and deleting files on a network partition by an unprivileged user.

The vulnerability is caused by an error in the `sids_to_unixids()` function that reads data from an out-of-bounds buffer when converting SIDs (Windows Security Identifiers) to GIDs (Unix Group IDs). The problem occurs when a negative item is added to the SID-to-GID mapping cache. The Samba developers were unable to identify reliable and repeatable conditions

for the vulnerability, but the researcher who identified the vulnerability believes that the problem can be exploited to delete files on the file server without proper rights to perform this operation.

<https://www.mail-archive.com/samba-announce@lists.samba.org/msg00548.html>

## RELEASE OF THE GNU NANO TEXT EDITOR 5.7:

04/29/2021

**T**he GNU nano 5.7 console text editor has been released, which is offered as the default editor in many custom distributions whose developers find vim too difficult to master.

The new release has improved the stability of the output when using the `--constantshow` option (without `--minibar`), which is responsible for showing the position of the cursor in the status bar. Softwrap mode ensures that the position and size of the indicator correspond to the actual number of lines, and not the visible number of lines (i.e., the size of the

indicator can change when scrolling).

<https://www.nano-editor.org/news.php>

## PROXMOX VE 6.4 RELEASED:

04/30/2021

**P**roxmox 6.4, a specialized Linux-distribution based on Debian GNU / Linux, aimed at the deployment and maintenance of virtual servers using LXC and the KVM, and able to act as replacement products such as VMware vSphere, Microsoft Hyper-V and Citrix Hypervisor. The size of the installation iso image is 928 MB.

Proxmox VE provides the means to deploy a turnkey system of industrial-grade virtual servers with web-based management, designed to manage hundreds or even thousands of virtual machines. The distribution has built-in tools for organizing backup of virtual environments and support for clustering available out of the box, including the ability to migrate virtual environments from one

node to another without interrupting work.

<https://www.proxmox.com/en/news/listid-1/mailid-177-proxmox-virtual-environment-6-4-released#h10>

## ROTAJAKIRO - NEW LINUX MALWARE MASQUERADING AS SYSTEMD PROCESS:

04/30/2021

**R**esearch Lab, 360 Netlab announced the identification of new malware for Linux, codenamed RotaJakiro and including a backdoor implementation that allows you to control the system. Malicious software could have been installed by attackers after exploiting unpatched vulnerabilities in the system or guessing weak passwords.

The backdoor was discovered in the course of analyzing suspicious traffic from one of the system processes identified during the analysis of the structure of the botnet used for the DDoS attack. Prior to that, RotaJakiro remained

unnoticed for three years, in particular, the first attempts to check files with MD5 hashes in the VirusTotal service that match the detected malware were dated May 2018.

One of the features of RotaJakiro is the use of different masking techniques when running as an unprivileged user and root. To hide its presence, the backdoor used the process names systemd-daemon, session-dbus and gvfsd-helper, which, given the clutter of modern Linux distributions with all sorts of service processes, at first glance seemed legitimate and did not arouse suspicion.

To hide the results of its activities in the backdoor, several encryption algorithms were used, for example, AES was used to encrypt its resources, and to hide

the communication channel with the control server, a bunch of AES, XOR and ROTATE combined with compression using ZLIB.

[https://blog.netlab.360.com/stealth\\_rotajakiro\\_backdoor\\_en/](https://blog.netlab.360.com/stealth_rotajakiro_backdoor_en/)

## QEMU 6.0 EMULATOR RELEASED:

04/30/2021

As an emulator, QEMU allows you to run a program compiled for one hardware platform on a system with a completely different architecture, for example, to run an application for ARM on an x86-compatible PC. In virtualization mode in QEMU, the performance of executing code in an isolated environment is close to the hardware system due to the direct

execution of instructions on the CPU and the use of the Xen hypervisor or the KVM module.

The project was originally created by Fabrice Bellard to enable x86-built Linux binaries to run on non-x86 architectures. Over the years of development, support for full emulation has been added for 14 hardware architectures, the number of emulated hardware devices has exceeded 400. In the preparation of version 6.0, more than 3300 changes were made by 268 developers.

<https://lists.nongnu.org/archive/html/qemu-devel/2021-04/msg06210.html>

## GHOSTBSD RELEASE 04/21/27:

04/30/2021

The GhostBSD 21.04.27 desktop distribution is now available, built on top of FreeBSD and offering a MATE user environment. By default, GhostBSD uses the OpenRC init system and the ZFS file system. Both work in Live mode and installation on a hard disk are supported (using its own installer ginstall, written in Python). Boot images are built for x86\_64 architecture (2.5 GB).

[https://ghostbsd.org/GhostBSD\\_21.04.27\\_ISO%27s\\_are\\_now\\_available](https://ghostbsd.org/GhostBSD_21.04.27_ISO%27s_are_now_available)

## THE FREE SOFTWARE FOUNDATION CERTIFIES THINKPENGUIN TPE-R1300 WIRELESS ROUTER:

04/30/2021

The Free Software Foundation has unveiled a new device that has received the "Respect Your Freedom" certification, which



# DistroWatch.com

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confirms that the device meets the requirements of ensuring privacy and freedom of users and gives the right to use a special logo in product-related materials, emphasizing the user's full control over the device. Certified by ThinkPenguin, Wireless-N Mini Router v3 ( TPE-R1300 ).

TPE-R1300 is an upgrade of the 2016 and 2019 certified TPE-R1100 and TPE-R1200. The new model is equipped with SoC Qualcomm QCA9531 (650MHz), provides 128MB of RAM, 16MB Nor flash + 128MB Nand flash, comes with two external RP-SMA antennas, Wan, LAN, USB2.0, MicroUSB and UART ports.

The router comes with a U-Boot loader and firmware based on the completely free libreCMC distribution, which is a fork of OpenWRT, shipped with the Linux-libre kernel and stripped of binary drivers, firmware and applications distributed under a non-free license. The distribution provides built-in tools for working through a VPN and anonymizing traffic using the Tor network.

<https://www.fsf.org/news/free-software-wireless-n-mini-router-v3-from-thinkpenguin-inc-now-fsf-certified-to-respect-your-freedom>

### POSTFIX 3.6.0 MAIL SERVER RELEASED:

05/01/2021

After a year of development, a new stable branch of the Postfix mail server - 3.6.0 was released. At the same time, support has been announced for the Postfix 3.2 branch released in early 2017. Postfix is one of the rare projects that combine high security, reliability and performance at the same time, which was achieved thanks to a well-thought-out architecture and a rather strict policy of coding and patch auditing. The project code is distributed under the EPL 2.0 (Eclipse Public license) and IPL 1.0 (IBM Public License) licenses.

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

### OPENBSD 6.9 RELEASED:

05/01/2021

A release of the free cross-platform UNIX-like operating system OpenBSD 6.9 is out. This is the 50th edition of the project, which will celebrate its 26th anniversary this year. The OpenBSD project was founded by Theo de Raadt in 1995 after a conflict with the NetBSD developers, as a result of which Theo was denied access to the NetBSD CVS repository. After that, Theo de Raadt and a group of like-minded people created a new open operating system based on the NetBSD source tree, the main development goals of which were portability ( 13 hardware platforms are supported ), standardization, correct operation, proactive security and integrated cryptographic tools. Full install ISO size base system OpenBSD 6.9 is 544 MB.

<https://www.mail-archive.com/announce@openbsd.org/msg00371.html>

### OPENINDIANA 2021.04, CONTINUING THE DEVELOPMENT OF OPENSOLARIS:

05/01/2021

After six months of development, the free distribution OpenIndiana 2021.04 was released, replacing the binary distribution OpenSolaris, which was discontinued by Oracle. OpenIndiana provides the user with a work environment built on a fresh slice of the Illumos project codebase . The development of OpenSolaris technologies is continued by the Illumos project, which develops the kernel, networking stack, file systems, drivers, and a basic set of custom system utilities and libraries. To download generated server edition with console applications (877 MB), the minimum assembly (345 MB) and build a graphical environment MATE (1.6 GB) - three types of iso-images.

<http://docs.openindiana.org/release-notes/2021.04-release-notes/>

## THE FIRST TEST RELEASE OF THE ROCKY LINUX:

05/01/2021

A Rocky Linux 8.3 release candidate is available for testing, which aims to create a new free build of RHEL that can take the place of classic CentOS, after Red Hat decided to end support for the CentOS 8 branch at the end of 2021, not in 2029, as originally intended. Rocky Linux builds are prepared for x86\_64 and aarch64 architectures.

The distribution is fully binary compatible with Red Hat Enterprise Linux 8.3. As in classic CentOS, the changes made to the packages are reduced to getting rid of the link to the Red Hat brand. The project is being developed under the leadership of Gregory Kurtzer, founder of CentOS. In parallel, a commercial company Ctrl IQ was created to develop advanced products based on Rocky Linux and support the community of developers of this distribution, which received \$4 million in investment. The Rocky Linux distribution itself is promised to be

developed independently of the Ctrl IQ company under the control of the community. MontaVista, 45Drives, OpenDrives and Amazon Web Services also joined the development and funding of the project.

<https://rockylinux.org/news/rocky-linux-8-3-rc1-release/>

## THE MUSE GROUP ACQUIRED THE AUDACITY PROJECT:

05/03/2021

Muse Group and absorbed sound editor Audacity, which will now be developed in conjunction with other products of the new company. Development will continue as a free project. Terms of the deal were not disclosed. Muse Group's projects will also include the free music editor MuseScore, bought by the same team in 2017 and continuing to actively develop it as a free project.

Plans regarding Audacity, there is an intention to hire developers and designers to modernize the interface, improve the usability and implement a non-destructive

editing mode. Recall that Audacity provides tools for editing sound files, recording and digitizing sound, changing the parameters of the sound file, overlaying tracks and applying effects (for example, noise suppression, changing the tempo and tone). Audacity code is distributed under the GPL license. The project has existed for over 20 years and continues to be popular, despite the 'archaic' interface and 'not the easiest sound processing process'.

<https://www.scoringnotes.com/news/muse-group-formed-to-support-musescore-ultimate-guitar-acquires-audacity/>

## GPARTED 1.3 PARTITION EDITOR RELEASED:

05/04/2021

Gparted 1.3 (GNOME Partition Editor) disk partition editor is out, which supports most of the file systems and partition types used in Linux. In addition to the functions of managing labels, editing and creating partitions, GParted allows you to reduce or increase the size of existing partitions without losing the data

located on them, check the integrity of partition tables, recover data from lost partitions, and align the beginning of a partition with cylinder boundaries.

<https://gparted.org/news.php?item=238>

## TRINITY R14.0.10 DESKTOP ENVIRONMENT RELEASED:

05/04/2021

The Trinity R14.0.10 desktop environment has been released, which continues the development of the KDE 3.5.x and Qt 3 code base. Binary packages will soon be available for Ubuntu, Debian, RHEL / CentOS, Fedora, openSUSE and other distributions.

Among the features of Trinity, one can note its own tools for managing screen parameters, a udev-based layer for working with equipment, a new interface for configuring equipment, a transition to the Compton-TDE composite manager (a fork of Compton with TDE extensions), an improved network configurator and user authentication mechanisms. The Trinity environment can be

installed and used concurrently with more current KDE releases, including the ability to use KDE applications already installed on the system in Trinity. There are also tools for the correct display of the interface of GTK programs without breaking the uniform design style.

<https://www.trinitydesktop.org/newsentry.php?entry=2021.04.30>

## WAYLAND-PROTOCOLS 1.21 RELEASED:

05/04/2021

The wayland-protocols 1.21 package was published, which contains a set of protocols and extensions that supplement the capabilities of the basic Wayland protocol and provide the capabilities necessary for building composite servers and user environments.

Since release 1.21, the "unstable" development stage has been replaced with "staging" in order to smooth the process of stabilizing protocols that have been tested in production environments. All protocols consistently go through three

phases - development, testing and stabilization. After completion of the development stage, the protocol is placed in the "staging" branch and included in the set of wayland-protocols, and after testing is completed, it is moved to the stable category. Protocols from the "staging" category can already be used in composite servers and clients where associated functionality is required. In the "staging" category, it is forbidden to make changes that violate compatibility, but in case of identifying problems and flaws during testing.

The new version introduces the ability to install using the Meson build system instead of autotools.

<https://lists.freedesktop.org/archives/wayland-devel/2021-April/041815.html>

## EXIM 4.94.2 UPDATE FIXES 10 REMOTELY EXPLOITED VULNERABILITIES:

05/04/2021

The mail server Exim 4.94.2 is out, with the elimination of 21 vulnerabilities (CVE-2020-28007-

CVE-2020-28026, CVE-2021-27216), which were identified by Qualys and presented under the codename 21Nails. 10 problems can be exploited remotely (including for executing code with root privileges), through manipulating SMTP commands when interacting with the server.

All versions of Exim that have been tracked in Git since 2004 are affected. Working prototypes of exploits have been prepared for 4 local vulnerabilities and 3 remote problems. Exploits for local vulnerabilities (CVE-2020-28007, CVE-2020-28008, CVE-2020-28015, CVE-2020-28012) allow you to elevate your privileges to the root user.

The Exim developers were notified of the problems back in October last year and have spent over 6 months developing fixes.

<https://www.openwall.com/lists/oss-security/2021/05/04/6>

## APACHE OPENOFFICE 4.1.10, FIXING A VULNERABILITY AFFECTING LIBREOFFICE:

05/04/2021

After three months of development and seven years since the last major release, a bug-fix release of the Apache OpenOffice 4.1.10 office suite is ready, in which 2 fixes are proposed. Ready-made packages are available for Linux, Windows and macOS.

This vulnerability ( CVE-2021-30245 ), allowing execution of arbitrary code on the system when you click on a specially designed link in the document issue is resolved. The vulnerability is caused by a bug in the handling of hypertext links that use protocols other than "http: //" and "https: //", such as "smb: //" and "dav: //".

For example, an attacker can host an executable file on his SMB server and insert a link to this file into the document. When the user clicks on this link, the specified executable file will be executed

without warning. The attack was demonstrated in Windows and Xubuntu. For protection in OpenOffice 4.1.10 an additional dialog has been added that requires the user to confirm the operation when following a link in a document.

The researchers who identified the problem noted that not only Apache OpenOffice but also LibreOffice ( CVE-2021-25631 ) is affected. For LibreOffice, the fix is available as a patch included with LibreOffice 7.0.5 and 7.1.2, but only fixes the problem on the Windows platform (updated list of prohibited file extensions). The LibreOffice developers refused to include a fix for Linux, arguing that the problem lies not in their area of responsibility and should be eliminated on the side of distributions / user environments. In addition to OpenOffice and LibreOffice office suites, a similar problem has also been identified in Telegram, Nextcloud, VLC, Bitcoin / Dogecoin Wallet, Wireshark and Mumble.

<https://blogs.apache.org/OOo/entry/announcing-apache-openoffice-4-16>

## SHOPIFY JOINS LINUX PATENT CLAIMS INITIATIVE:

05/04/2021

Shopify, developing one of the largest e-commerce platforms for payments and sales organization in both conventional and online stores, has joined a number of participants in the Open Invention the Network (OIN). It is noted that the Shopify platform uses the Ruby on Rails framework and the company considers open source software to be the key core of its business. By joining the OIN, the company intends to show its commitment to innovation and to help protect against patent aggression affecting Linux-based systems.

OIN members are committed not to make patent claims and are free to authorize the use of patented technologies in projects related to the Linux ecosystem. OIN members include more than 3,300 companies, communities and organizations that have signed licensing agreements for the sharing of patents. Among the main OIN participants, providing the formation of a patent pool

protecting Linux, such companies as Google, IBM, NEC, Toyota, Renault, SUSE, Philips, Red Hat, Alibaba, HP, AT&T, Juniper, Facebook, Cisco, Casio, Huawei, Fujitsu, Sony and Microsoft.

<https://openinventionnetwork.com/shopify-joins-the-open-invention-network/>

## SYNCTHING 1.16 RELEASED:

05/05/2021

The release of the automatic file synchronization system Syncthing 1.16 is available. This synchronized data is not uploaded to cloud storage, but is directly replicated between the user's systems when they simultaneously appear online, using the BEP (Block Exchange Protocol) protocol developed by the project. Syncthing code is written in Go and is distributed under the free MPL license. Binaries are prepared for Linux, Android, Windows, macOS, FreeBSD, Dragonfly BSD, NetBSD, OpenBSD and Solaris.

It is also possible to create large decentralized networks for storing shared data that are distributed

across many systems of participants. It provides flexible access controls and exceptions for synchronization. It is possible to define hosts that will only receive data, i.e. changes to data on these hosts will not affect data instances stored on other systems. Several modes of file versioning are supported, in which the previous versions of the changed data are preserved.

<https://forum.syncthing.net/t/syncthing-v1-16-0-v1-16-1/16758/>

## RELEASE OF SHOTCUT VIDEO EDITOR:

05/05/2021

The video editor Shotcut 21.05 is out. It is being developed by the author of the MLT project and uses this framework to organize video editing. Support for video and sound formats is implemented through FFmpeg. It is possible to use plug-ins with the implementation of video and audio effects, compatible with Frei0r and LADSPA . Among the features of Shotcut, there is the possibility of multi-track editing with the composition of video from



fragments in various source formats, without the need to import or recode them first. There are built-in tools for creating screencasts, processing images from a web camera and receiving streaming video. Qt5 is used to build the interface. The code is written in C++ and distributed under the GPLv3 license.

<https://www.shotcut.org/blog/new-release-210501/>

## QT CREATOR 4.15 RELEASED:

05/05/2021

Qt Creator 4.15 integrated development environment has been released, designed to create cross-platform applications using the Qt library. Both the development of classic programs in C++ and the use of QML are supported. In these JavaScript is used to define scripts, and the structure and parameters of interface elements are set by CSS-like blocks.

Qt Creator 4.15 will be the last release in the 4.x series, a transition to a new versioning

scheme is expected in the summer, where the first digit of the version will change in releases with functional changes (Qt Creator 5, Qt Creator 6, etc.).

<https://www.qt.io/blog/qt-creator-4.15-released>

## FREE HEROES OF MIGHT AND MAGIC II 0.9.3 RELEASED:

05/05/2021

A release of project: fheroes2 0.9.3 is available, trying to recreate the game Heroes of Might and Magic II. The project code is written in C++ and is distributed under the GPLv2 license. To start the game, you need files with game resources, which can be obtained, for example, from the demo version of Heroes of Might and Magic II.

<https://github.com/iithub/fheroes2/releases/tag/0.9.3>

## MESA 21.1, A FREE IMPLEMENTATION OF OpenGL AND VULKAN RELEASED:

05/06/2021

The first release of the Mesa 21.1.0 branch has an experimental status - after the final stabilization of the code, version 21.1.1 will be released. Mesa 21.1 provides full OpenGL 4.6 support for the 965, iris (Intel), radeonsi (AMD), zink, and llvmpipe drivers. Support for OpenGL 4.5 is available for the GPU AMD (r600) and NVIDIA (nvc0), and OpenGL 4.3 to virgl (virtual the GPU Virgil3D for QEMU / KVM). Vulkan 1.2 is supported for Intel and AMD cards, Vulkan 1.1 for Qualcomm GPUs and lavapipe software rasterizer, and Vulkan 1.0 for Broadcom VideoCore VI GPUs (Raspberry Pi 4).

<https://lists.freedesktop.org/archives/mesa-dev/2021-May/225248.html>

## RHVOICE 1.2.4 SPEECH SYNTHESIZER DEVELOPED FOR RUSSIAN SPEAKERS:

05/06/2021

The release of the open speech synthesis system RHVoice 1.2.4 has been published. Originally developed to provide high-quality support for the Russian language, but then adapted for other languages, including English, Portuguese, Ukrainian, Kyrgyz, Tatar and Georgian. The code is written in C++ and is distributed under the LGPL 2.1 license. Supported work in GNU / Linux, Windows and Android. The program is compatible with common TTS (text-to-speech) interfaces for converting text to speech: SAPI5 (Windows), Speech Dispatcher (GNU / Linux) and Android Text-To-Speech API, but can also be used in the NVDA screen reader

Tuning and changing of voices is supported. There are 9 voices available for the Russian language, and 5 for the English language. Voices are formed from natural speech recordings. Due to the use of a statistical model, the

pronunciation quality does not reach the level of synthesizers that generate speech based on a combination of fragments of natural speech, but nevertheless the result is quite legible and resembles the broadcast of a recording from a loudspeaker.

<https://github.com/RHVoice/RHVoice/releases/tag/1.2.4>

## LINUX KERNEL DEVELOPERS COMPLETE AUDIT OF ALL PATCHES FROM THE UNIVERSITY OF MINNESOTA:

05/06/2021

The Linux Foundation's technical council has published a consolidated report on an incident with researchers at the University of Minnesota in an attempt to push patches into the kernel that contain hidden bugs that lead to vulnerabilities. The kernel developers confirmed the previously published information that out of 5 patches prepared in the course of the Hypocrite Commits study, 4 patches with vulnerabilities were rejected immediately and at the initiative of

the maintainers and did not get into the kernel repository. One patch was accepted, but it correctly fixed the problem and was free of bugs.

They also analyzed 435 commits, including fixes submitted by developers from the University of Minnesota and not related to an experiment to promote hidden vulnerabilities. Since 2018, a team of researchers from the University of Minnesota has been quite active in correcting errors. Re-reviewing did not reveal any malicious activity in these commits, but revealed some unintentional errors and shortcomings.

349 commits were considered correct and left unchanged. Problems were found in 39 commits that need to be fixed - these commits have been canceled and will be replaced with more correct fixes before the 5.13 kernel is released. Errors in 25 commits were fixed in subsequent changes. 12 commits lost their relevance, as they affected legacy systems that have already been removed from the kernel. One of the correct commits was canceled at the request of the author. 9 correct commits were sent from @

umn.edu addresses long before the formation of the parsed research team.

To restore trust in the University of Minnesota team and regain the opportunity to participate in kernel development, the Linux Foundation has set a number of requirements, most of which have already been met. For example, researchers have already withdrawn the publication of "Hypocrite Commits" and canceled their talk at the IEEE Symposium, as well as publicly disclosing the entire chronology of events and providing details of the changes sent during the study.

<https://lore.kernel.org/lkml/202105051005.49BFABCE@keesco.uk/>

## QT 6.1 FRAMEWORK RELEASED:

05/06/2021

The Qt Company has released the Qt 6.1 framework, where work continues to stabilize and increase the functionality of the Qt 6 branch. Qt 6.1 provides support for Windows 10, macOS 10.14+,

Linux platforms (Ubuntu 20.04+, CentOS 8.1+, OpenSUSE 15.1+), iOS 13+ and Android (API 23+). The sources for the Qt components are released under the LGPLv3 and GPLv2 licenses.

<https://www.qt.io/blog/qt-6.1-released>

## NITRUX 1.4.0 RELEASE WITH NX DESKTOP:

05/07/2021

Nitrux 1.4.0, built on Debian, KDE technologies and the OpenRC init system has been published. The distribution develops its own NX Desktop, which is an add-on over the user's KDE Plasma environment. ApplImages are being promoted to install additional applications. The boot images are 3.1 GB and 1.4 GB in size. The code of the project is distributed under free licenses.

NX Desktop offers a different style, its own implementation of the system tray, notification center and various plasmoids, such as a network configurator and a media applet for volume control and playback control of multimedia

content. They have a snazzy firewall control too. The package also includes applications from the MauiKit suite, including the Index file manager (you can also use Dolphin), Note text editor, Station terminal emulator, Clip music player, VVave video player and Pix image viewer.

<https://nxos.org/changelog/changelog-nitrux-1-4-0/>

## LIBREOFFICE 7.1.3 UPDATE:

05/07/2021

The Document Foundation today announced a Community Correction release of LibreOffice 7.1.3 aimed at enthusiasts, power users and those who prefer the latest software. Ready-made installation packages are prepared for Linux, macOS and Windows platforms. The update includes only 105 bug fixes (RC1, RC2). About a quarter of the fixes are related to improved compatibility with Microsoft Office formats (DOCX, XLSX, and PPTX).

As a reminder, starting with 7.1 the office suite has been split into a community edition ("LibreOffice

Community") and an enterprise product family ("LibreOffice Enterprise"). Community editions are supported by enthusiasts and are not targeted at enterprise applications. Enterprises should rather use the products of the LibreOffice Enterprise family, for which partner companies will provide full support and the ability to receive long-term updates (LTS). LibreOffice Enterprise can also include additional features such as SLA (Service Level Agreements). The code and distribution conditions remain the same and LibreOffice Community is available without restrictions to everyone without exception, including corporate users.

<https://blog.documentfoundation.org/blog/2021/05/06/libreoffice-7-1-3/>

## WINE 6.8 RELEASED:

05/08/2021

An open implementation of WinAPI has been released from the experimental branch - Wine 6.8. Since the release of version 6.7, 35 bug reports have been closed and 359 changes have been

made.

<https://www.winehq.org/announce/6.8>

## INTERFACE FOR SMARTWATCHES ADDED TO POSTMARKETOS:

05/09/2021

The developers of postmarketOS, a distribution for smartphones based on Alpine Linux, Musl and BusyBox, have implemented the ability to use a user interface for smartwatches based on the work of the AsteroidOS project. The postmarketOS distribution was originally developed for smartphones and provided the ability to use a variety of user interfaces, including KDE Plasma Mobile, Phosh and Sxmo. Enthusiasts have been developing postmarketOS ports for the LG G Watch and LG G Watch R for several years, which until now have been limited to boot to the command line mode, since the custom skins for smartphones available in postmarketOS are too heavy and irregular for such devices. The

solution was to create a port of the Asteroid interface, prepared specifically for smartwatches. The specified interface is developed by the AsteroidOS project and was originally used in combination with the Mer system environment. Asteroid includes a selection of essential smartwatch applications written in Qt 5 using QML and running in the asteroid-launcher shell environment, which includes a composite server based on the Wayland protocol.

[https://gitlab.com/postmarketOS/pmaports/-/merge\\_requests/2124](https://gitlab.com/postmarketOS/pmaports/-/merge_requests/2124)

## NEW RELEASES OF GNUSTEP COMPONENTS:

05/09/2021

Available new releases of packages constituting the framework GNUstep, designed to develop cross-platform graphics and server applications using the API, close to the programming interfaces Apple Cocoa. In addition to the AppKit implementation libraries and Foundation framework components, the project is also developing the Gorm

interface design toolkit and the ProjectCenter development environment aimed at creating portable analogues of InterfaceBuilder, ProjectBuilder, and Xcode. The main development language is Objective-C, but GNUstep can be used with other languages as well. Supported platforms include macOS, Solaris, GNU / Linux, GNU / Hurd, NetBSD, OpenBSD, FreeBSD, and Windows. Project developments are disseminated and licensed under the LGPLv3.

<https://www.mail-archive.com/info-gnu@gnu.org/msg02888.html>

## ARMBIAN DISTRIBUTION RELEASE 21.05:

05/10/2021

Hosted Linux-distribution release Armbian 21.05 , providing a compact system environment for various single board computers based on ARM processors, including various models Odroid, Orange Pi, Banana Pi, Helios64, pine64, Nanopi and Cubieboard based on Allwinner processors, Amlogic, Actionsemi,

Freescall / NXP, Marvell Armada, Rockchip and Samsung Exynos.

For the formation of assemblies, the package bases of Debian 10 and Ubuntu 18.04 / 20.10 are used, but the environment is completely rebuilt using its own assembly system with the inclusion of optimizations to reduce the size, increase performance and apply additional protection mechanisms. For example, the / var / log partition is mounted using zram and stored in RAM in a compressed form and flushed to the drive once a day or at shutdown. The / tmp partition is mounted using tmpfs.

<https://forum.armbian.com/topic/18081-armbian-2105-jerboa/>

## SSH CLIENT PUTTY 0.75 RELEASED:

05/10/2021

The release of PuTTY 0.75 , a client for SSH, Telnet, Rlogin and SUPDUP protocols, comes with a built-in terminal emulator and supports work on Unix-like systems and Windows. The source code of the project is available under the

MIT license.

<https://lists.tartarus.org/pipermail/putty-announce/2021/000031.html>

## UBUNTU RESCUEPACK 21.05 ANTIVIRUS BOOT DISK AVAILABLE:

05/10/2021

Ubuntu RescuePack 21.05 is available for download. It allows you to conduct a full anti-virus scan without starting the main operating system to detect and remove various malicious programs and computer viruses in the system. The use of an external boot disk prevents malware from interfering with the neutralization and restoration of the infected system. It can be viewed as a Linux alternative to such disks as Dr.Web LiveDisk and Kaspersky Rescue Disk.

It includes antivirus packages ESET NOD32 4, BitDefender, COMODO, Sophos, eScan, F-PROT, Vba32 and ClamAV (ClamTk). Antivirus databases include the latest May updates. The disk is also equipped with tools for recovering

deleted files. Data validation in FAT, FAT32, exFAT, NTFS, HFS, HFS+, btrfs, e2fs, ext2, ext3, ext4, jfs, nilfs, reiserfs, reiser4, xfs and zfs file systems is supported. The size of the bootable Live image is 2.9 GB.

<https://ualinux.com/ru/news/obnovlen-ubuntu-rescuepack-21-05>

## DRAGONFLY BSD 6.0 RELEASED:

05/10/2021

After over a year of development, DragonFlyBSD 6.0 , the operating system with a hybrid kernel is out. It was created in 2003 for the purpose of being an alternative development branch FreeBSD 4.x. Among the features of DragonFly BSD, one can single out the distributed versioned file system "HAMMER" , support for loading "virtual" system kernels as user processes, the ability to cache data and FS metadata on SSD drives, context-sensitive variant symbolic links, the ability to freeze processes while saving their state to disk, a hybrid kernel using lightweight streams (LWKT).



<https://www.dragonflydigest.com/2021/05/10/25731.html>

## VLC 3.0.14 MEDIA PLAYER UPDATE WITH VULNERABILITY FIXES:

05/11/2021

A bug-fix release of VLC 3.0.13 was released. In this release, the accumulated bugs are mainly fixed and vulnerabilities are eliminated. Among the improvements are, the addition of NFSv4 support, improved integration with storages based on the SMB2 protocol, improved smoothness of rendering through Direct3D11. They added horizontal axis settings for the mouse wheel and implementation of the ability to scale the text of SSA subtitles. Bug fixes mention how to fix the problem with the appearance of artifacts when playing HLS streams and solve problems with audio in MP4 format. VLC 3.0.13 also fixes several other vulnerabilities caused by bugs that lead to writing data in the area outside the buffer when processing invalid multimedia files in MP4 format. A bug in kate

decoder that caused the buffer to be used after it was freed has been fixed. They also fixed a problem in the automatic update delivery system, which allows the replacement of an update during MITM attacks.

<https://www.videolan.org/news.html#news-2021-05-10>

## COREBOOT 4.14 RELEASED:

05/11/2021

CoreBoot 4.14, the framework within which a free alternative to proprietary firmware and BIOS is being developed, is out. 215 developers took part in the creation of the new version and 3660 changes were tracked.

<https://blogs.coreboot.org/blog/2021/05/10/announcing-coreboot-4-14/>

## HUBZILLA 5.6 RELEASED:

05/11/2021

A new release of the platform for building decentralized social networks - Hubzilla 5.6 has

been published. The project provides a communication server that is integrated with web publishing systems, equipped with a transparent identity system and access controls in Fediverse decentralized networks. The project code is written in PHP and JavaScript and is distributed under the MIT license; MySQL DBMS and its forks, as well as PostgreSQL are supported as data storage.

Hubzilla has a unified authentication system to operate as a social network, forums, discussion groups, Wiki, article publishing systems and websites. Federated interaction is based on the proprietary Zot protocol, which implements the concept of WebMTA for transferring content over the WWW in decentralized networks and provides a number of unique functions, in particular, transparent pass-through authentication of "Nomadic Identity" within the Zot network, as well as a cloning function to ensure completely identical points logs and sets of user data on various network nodes. Supports exchange with other Fediverse networks using ActivityPub, Diaspora, DFRN and OStatus protocols. The Hubzilla file storage is also

available via the WebDAV protocol. In addition, the system supports CalDAV events and calendars.

<https://hub.somaton.com/item/28fd7b30-7770-404f-995e-af97ad154187>

## IBM OPENS CODENET FOR MACHINE LEARNING SYSTEMS THAT TRANSLATE AND VALIDATE CODE:

05/11/2021

IBM has unveiled the CodeNet initiative, which aims to provide researchers with a dataset to experiment with using machine learning techniques to create translators from one programming language to another, as well as code generators and analyzers. CodeNet includes a collection of 14 million code examples that solve 4053 common programming problems. In total, the collection contains about 500 million lines of code and covers 55 programming languages, both modern languages such as C++, Java, Python and Go, and legacy ones, including COBOL, Pascal and

FORTTRAN. The developments of the project are distributed under the Apache 2.0 license, and the datasets are planned to be distributed in the form of public domain.

<https://research.ibm.com/blog/codenet-ai-for-code>

## OPENIPC 2.1 RELEASED, AN ALTERNATIVE FIRMWARE FOR CCTV CAMERAS:

05/12/2021

The release of the Linux distribution OpenIPC 2.1 has been published, designed for use in CCTV cameras instead of standard firmware, most of which eventually cease to be updated by manufacturers. The release is positioned as experimental and, unlike the stable branch, is built not on the basis of the OpenWRT package base, but using buildroot. The developments of the project are distributed under the MIT license. Firmware images were prepared for IP cameras based on Hisilicon Hi35xx, SigmaStar SSC335, XiongmaiTech XM510 and XM530 chips.

The proposed firmware provides such functions as support for hardware motion detectors, its own implementation of the RTSP protocol for distributing video from one camera to more than 10 clients simultaneously, the ability to use hardware support for h264 / h265 codecs, support for audio with a sampling rate of up to 96KHz, the ability to transcode JPEG images on-the-fly for progressive download and support for Adobe DNG RAW format for computational photography.

<https://github.com/OpenIPC/openipc-2.1>

## UBUNTU TOUCH SEVENTEENTH FIRMWARE UPDATE:

05/12/2021

The UBports project, which took over the development of the Ubuntu Touch mobile platform after Canonical pulled out of it, has published an OTA-17 (over-the-air) firmware update. The project also develops an experimental port of the Unity 8 desktop, which has

been renamed to Lomiri.

Update Ubuntu Touch OTA-17 is formed to OnePlus One smartphone, Fairphone 2, Nexus 4, Nexus 5, Nexus July 2013, Meizu MX4 / PRO 5, VollaPhone, Bq Aquaris E5 / E4.5 / M10, Sony Xperia X / XZ, OnePlus 3 / 3T, Xiaomi Redmi 4X, Huawei Nexus 6P, Sony Xperia Z4 Tablet, Google Pixel 3a, OnePlus Two, F (x) tec Pro1 / Pro1 X, Xiaomi Redmi Note 7, Samsung Galaxy Note 4, Xiaomi Mi A2 and Samsung Galaxy S3 Neo + (GT-I9301I). Separately, without the "OTA-17" tag, updates will be prepared for the Pine64 PinePhone and PineTab devices. Compared to the previous release, the formation of stable assemblies has begun for Xiaomi Redmi Note 7 Pro and Xiaomi Redmi 3s / 3x / 3sp devices.

Ubuntu Touch OTA-17 is still based on Ubuntu 16.04, but more recently, developer efforts have focused on preparing for the transition to Ubuntu 20.04. OTA-17 innovations include the update of the Mir display server to version 1.8.1 (previously used release 1.2.0) and the implementation of NFC support in most devices originally shipped with the Android 9 platform, such as the Pixel 3a and

Volla Phone. Including applications can now read and write NFC tags and interact with other devices using this protocol.

<https://ubports.com/blog/ubports-news-1/post/ubuntu-touch-ota-17-release-3755>

## RELEASE OF THE SYSTEMRESCUE 8.03 DISTRIBUTION:

05/12/2021

A available Release SystemRescue 8.03, a dedicated Live-distribution on the basis of Arch Linux, designed to recover from a system failure. Xfce is used as a graphical environment. The size of the iso image is 717 MB (amd64, i686).

Among the changes in the new version, mention is made of the Linux kernel 5.10.34 update, the inclusion of the gsmartcontrol utility to identify problems with disks and SSDs, and the addition of the xfburn utility for CD / DVD / Blu-ray burning. The text editor joe has been removed from the distribution. Updated version of the gparted section editor 1.3.0.

Fixed problems with booting from NTFS.

<https://www.system-rescue.org/Changes-x86/>

## RELEASE OF BODHI LINUX 6.0, OFFERING THE MOKSHA DESKTOP ENVIRONMENT:

05/12/2021

The release of the Bodhi Linux 6.0 distribution kit, supplied with the Moksha desktop environment, is presented. Moksha is being developed as a fork of the Enlightenment 17 (E17) codebase, created to continue the development of Enlightenment as a lightweight desktop, as a result of disagreement with the development policy of the project, the proliferation of the

Enlightenment 19 (E19) environment, and deteriorating codebase stability. Three installation images are offered for download: regular (872 MB), with additional drivers (877 MB) and extended with an additional set of applications (1.7 GB).

<https://www.bodhilinux.com/2021/05/12/bodhi-linux-6-0-0-released/>

## FEDORA SILVERBLUE, FEDORA IOT, AND FEDORA COREOS ADD USER COUNTING CODE:

05/12/2021

The developers of the Fedora distribution announced the decision to integrate into the editions of the Fedora Silverblue,

Fedora IoT and Fedora CoreOS distribution a component to send the draft statistics to the server, which makes it possible to judge the number of users who have the distribution kit. Previously, similar statistics were sent in traditional Fedora builds, and will now be added to atomically updated editions based on rpm-ostree.

Send data will be enabled by default in Fedora 34 IoT and Silverblue, and will be available in Fedora CoreOS in August. If he does not want to send data about his system, the user is suggested to disable the rpm-ostree-countme.timer service with the command "systemctl mask --now rpm-ostree-countme.timer". It is noted that only anonymized data is sent, which does not include information that could be used to identify specific users. The used

counting mechanism is similar to the Count Me service used in Fedora 32, based on the transfer of the installation time counter and a variable with information about the architecture and OS version.

<https://fedoramagazine.org/getting-better-at-counting-rpm-ostree-based-systems/>

## RELEASE OF NOMADBSD 130R-20210508:

05/13/2021

The NomadBSD 130R-20210508 Live distribution is now available, which is a FreeBSD edition adapted for use as a portable desktop that boots from a USB stick. The graphical environment is based on the Openbox window manager. DSBMD is used to mount drives (mounting CD9660, FAT, HFS+, NTFS, Ext2 / 3/4 is supported). The size of the boot image is 2.4 GB (x86\_64).

In the new release, the base environment has been updated to FreeBSD 13.0. A new version number assignment scheme has been proposed, corresponding to



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the FFFX-YYYYMMDD format, where "FFF" represents the underlying FreeBSD version number, "X" indicates the release type (ALPHA - A, BETA - B, RELEASE - R), and YYYYMMDD includes the date assembly. The new scheme will allow building images based on different versions of FreeBSD and will provide an opportunity to immediately see when the release is prepared and on which version of FreeBSD. The changes also mark the transition to the alignment of disk partitions along the 1M boundary to improve write performance on Flash drives. Fixed issue when shutting down GLX. Added drivers for VMware.

<https://nomadbsd.org/index.html#130R-20210508>

## LIBOPENAPTIX CHANGED ITS LICENSE TO BLOCK CODE BORROWING BY FREEDESKTOP PROJECTS:

05/13/2021

Pali Rohár has changed the license for the libopenaptix project, which offers an implementation of the Audio

Processing Technology (aptX) codec used in the A2DP Bluetooth profile. This package includes the libopenaptx.so library and audio encoding and decoding utilities. The license was changed from LGPLv2.1 to GPLv3+, which will make it impossible to use the libopenaptx code in projects supplied only under the GPLv2 license without relicensing the code linked to the library to GPLv3. At the same time, license compatibility with projects under the Apache 2.0 license will be achieved.

The change of license was a response to a conflict with the developers of the Freedesktop project and the Collabora company, which, according to the creator of Libopenaptx, violated the license agreement and abused the adopted code of conduct. In particular, according to Pali, the developers of Freedesktop and Collabora ported its code to PulseAudio without providing information about the author.

<https://github.com/pali/libopenaptx/commit/811bc18586d634042618d633727ac0281d4170b8>

## GNU GUIX 1.3 AVAILABLE:

05/13/2021

The package manager GNU Guix 1.3 and the GNU / Linux distribution kit built on its basis have been released. To download, images are generated for installation on USB Flash (610 MB) and use in virtualization systems (972 MB). Supported work on architectures i686, x86\_64, Power9, armv7 and aarch64.

The distribution kit can be installed both as a standalone OS in virtualization systems, in containers and on conventional hardware, as well as running in already installed GNU / Linux distributions, acting as a platform for deploying applications. The user is provided with such functions as dependency accounting, repeatable builds, working without root, rolling back to previous versions in case of problems, configuration management, cloning environments (creating an exact copy of the software environment on other computers), etc.

<https://lists.gnu.org/archive/html/info-gnu/2021-05/msg00008.html>

## OUTWIKER 3.0 NOTE-TAKING SOFTWARE AVAILABLE:

05/13/2021

A new stable version of the program for storing notes OutWiker 3.0 has been released. A feature of the program is that notes are stored in the form of directories with text files, an arbitrary number of files can be attached to each note, the program allows you to write notes using various notations: HTML, wiki, Markdown (if the corresponding plugin is installed). Also, using plugins, you can add the ability to post formulas in LaTeX format on wiki pages and insert a block of code with coloring keywords for various programming languages. The program is written in Python (interface on wxWidgets), is distributed under the GPLv3 license and is available in assemblies for Linux and Windows.

<https://jenyay.net/Soft/Outwiker>



## POSTGRESQL UPGRADE WITH VULNERABILITY FIXES:

05/14/2021

**B**ug-fix updates have been generated for all supported PostgreSQL branches: 13.3 , 12.7 , 11.12 , 10.17 and 9.6.22. Updates for branch 9.6 will be generated until November 2021, 10 until November 2022, 11 until November 2023, 12 until November 2024, 13 until November 2025. In the new releases, three vulnerabilities have been fixed and accumulated bugs have also been fixed.

Vulnerability CVE-2021-32027 can lead to writing data out of buffer boundaries due to an integer overflow when calculating array indices. By manipulating the values of arrays in SQL queries, an attacker who has access to executing SQL queries can write any data to an arbitrary area of the process memory and achieve execution of his code with the rights of a DBMS server. Two other vulnerabilities (CVE-2021-32028, CVE-2021-32029) leak the contents of the process memory when manipulating the "INSERT ... ON

CONFLICT ... DO UPDATE" and "UPDATE ... RETURNING" queries.

<https://www.postgresql.org/about/news/postgresql-133-127-1112-1017-and-9622-released-2210/>

## ZULIP 4.0 AVAILABLE:

05/14/2021

**Z**ulip 4.0, a server platform for deploying corporate messengers suitable for communication between employees and development teams. The project was originally developed by Zulip and open sourced after its takeover by Dropbox under the Apache 2.0 license. The server-side code is written in Python using the Django framework. Client software is available for Linux, Windows, macOS, Android and iOS, and an embedded web interface is provided.

The system supports both direct messaging between two people and group discussions. Zulip can be compared to Slack and can be viewed as an internal corporate analogue of Twitter, used for

communication and discussion of work issues in large groups of employees. It provides a means to track status and participate in multiple conversations at the same time using a thread-like message display model, which is the best compromise between binding to rooms in Slack and a single public Twitter space. Simultaneous thread-like display of all discussions allows you to cover all groups in one place, while maintaining a logical separation between them.

<https://blog.zulip.com/2021/05/13/zulip-4-0-released/>

## BODHI 6 64-BIT RELEASE

05/17/21

**B**odhi 6.0 64-bit was released, built on the Ubuntu 20.04.2 LTS (Focal Fossa) base. The 32-bit version will take about a month longer and will be based on Debian 11 Testing.

The Arc-Green theme underwent a major revamp, featuring an animated background, updated splash screen, and

numerous tweaks. The ogin screen now features an elegant slick greeter. There also is a new Plymouth theme, and Moksha itself underwent numerous improvements and had a few new features added. Support has been improved for non-English languages, including the fact that they are working on both mainland and Brazilian Portuguese at the current time; as a result, the gnome language tool is not installed by default.

Other notable changes since the Bodhi 5.1 release include replacing PcManFm with a custom-patched version of Thunar. In addition Robert Wiley also patched Leafpad and ePhoto: Leafpad to fix the truncated file issue that led to its removal from both the Debian and Ubuntu Repositories, and ePhoto to fix an issue it had with loading images not in the Users Home folder. Chromium is the default web browser. Also apturl-elm was replaced with a custom script which now uses policy-kit and synaptic as a backend. It should be noted the installation of snaps is disabled by default but can easily be re-implemented by the user.

<https://www.bodhilinux.com/2021/05/12/bodhi-linux-6-0-0-released/>

## KDE PLASMA 5.22 TESTING HAS BEGUN:

05/17/2021

A beta version of the custom Plasma 5.22 shell is available for testing. You can test the new release through the Live build from the openSUSE project and the build from the KDE Neon Testing edition project. Packages for various distributions can be found on the page in the link. The release is expected on June 8th.

<https://kde.org/announcements/plasma/5/5.21.90>

## ZABBIX 5.4 RELEASE:

05/17/2021

A new version of free monitoring system with completely open source, Zabbix 5.4 is out. The release includes support for generating reports in PDF format, new syntax for aggregating

detection of more complex problems, improved data visualization, support for tokens for API access, tags at the metric level, performance improvements, and much more.

Zabbix consists of three basic components: a server for coordinating the execution of checks, generating test requests and accumulating statistics; agents for performing checks on the side of external hosts and frontend for organizing system management. The code is distributed under the GPLv2 license. To relieve the load from the central server and form a distributed monitoring network, a series of proxy servers can be deployed that aggregate data on checking a group of hosts. Data can be stored in MySQL, PostgreSQL, TimescaleDB, DB2 and Oracle DBMS. Without agents, Zabbix server can receive data via protocols such as SNMP, IPMI, JMX, SSH / Telnet, ODBC, and test the availability of Web applications and virtualization systems.

<https://www.zabbix.com/rn/rn5.4.0>

## NETBSD 9.2 RELEASED:

05/17/2021

NetBSD 9.2 is out. There are 820 MB installation images prepared for download, available for 57 system architectures and 16 different CPU families. Go get it now.

[https://blog.netbsd.org/tnf/entry/netbsd\\_9\\_2\\_released](https://blog.netbsd.org/tnf/entry/netbsd_9_2_released)

## THE OPENPRINTING PROJECT AND CUPS PRINTING SYSTEM:

05/18/2021

Till Kamppeter, the leader of the OpenPrinting project, announced that due to Apple's lack of interest in maintaining the CUPS printing system, the CUPS fork, founded last year, can be seen as an upstream project for patches and distributions. Participating in the development of the fork is Michael R Sweet, the original author of CUPS, who quit Apple a year and a half ago.

Among the changes already added, the integration of the patches accumulated for Ubuntu is noted, as well as the addition of the capabilities necessary to distribute the print stack based on CUPS, cups-filters, Ghostscript and Poppler in a self-sufficient package in Snap format (Ubuntu plans to switch to this snap instead of the usual packages). Another front of work is fixing bugs that have been reported to the Apple repository over the past 15 months.

<https://openprinting.github.io/OpenPrinting-News-March-2021/>

## VULNERABILITIES IN PLEASE, THE RUST ALTERNATIVE TO SUDO:

05/18/2021

Matthias Gerstner of the SUSE Security Team has audited the Please utility, which is being developed as a more secure Rust alternative to sudo, that supports regular expressions. The utility is supplied in the Debian Testing and Ubuntu 21.04 repositories in the rust-pleaser package. During the audit, a group of vulnerabilities

(CVE-2021-31153, CVE-2021-31154, CVE-2021-31155) were identified that lead to a crash and do not exclude the possibility of creating exploits to elevate privileges in the system.

The vulnerabilities were fixed in the 0.4 branch. (Package updates are already offered for Ubuntu and Debian ). Details on the nature of the vulnerabilities have not yet been disclosed - only one general patch is available and a brief explanation of which of the recommendations for fixing security problems has been applied.

<https://github.com/edneville/please>

## FIRST RELEASE OF DOGLINUX:

05/19/2021

The first release of a specialized distribution, DogLinux (Debian LiveCD in the style of Puppy Linux), built on Debian 11 "Bullseye", and intended for testing and servicing PCs and laptops, has been released. It includes applications

such as GPUPTest, Unigine Heaven, ddrescue, WHDD, and DMDE. The system environment is based on Linux kernel 5.10.28, Mesa 20.3.4, Xfce 4.16, Porteus Initrd, syslinux boot loader and sysvinit init system. ALSA is used directly instead of Pulseaudio. The pup-volume-monitor is responsible for mounting the drives (without using gvfs and udisks2). The size of the live image downloaded from USB drives is 1.1 GB (torrent).

<https://gumanzoy.blogspot.com/2021/05/liveusb-1100mb-doglinux-debian-11.html>

## SOLARIS 11.4 SRU33 AVAILABLE:

05/19/2021

Oracle has published a Solaris 11.4 SRU 33 (Support Repository Update) operating system update, which offers a series of regular fixes and improvements for the Solaris 11.4 branch. To install the fixes proposed in the update, simply run the 'pkg update' command.

<https://blogs.oracle.com/solaris/announcing-oracle-solaris-114-sru33>

## 1PASSWORD PASSWORD MANAGER OFFERS FULL LINUX SUPPORT:

05/19/2021

The proprietary password manager 1Password implemented full support for the Linux platform, including integration with the GNOME desktop environment, KDE, as well as other window managers. An applet called from the system tray is implemented to manage passwords. They claim support for Debian, Ubuntu, CentOS, Fedora, Arch Linux and RHEL. Additionally, self-sufficient packages in snap format. Among the notable features are the automatic activation of a dark theme based on the selected GTK theme, support for accessing external resources via FTP, SSH and SMB, integration of support for X11 clipboards, support for GNOME Keyring and KDE Wallet, management API based on DBUS and command line, integration with

a screen saver and services called when the system is inactive. The application code is written in Rust using the Ring module for encryption, the Electron framework and the React framework for the frontend. 1Password is a proprietary paid product, but developers of any open source projects are given the opportunity to use the program for free (you need to send a pull request), including unlimited access to the Secrets Automation service.

<https://blog.1password.com/welcoming-linux-to-the-1password-family/>

## GECKOLINUX DISTRIBUTION RELEASE:

05/19/2021

GeckoLinux 999.210517 distribution is now available, based on openSUSE and focusing heavily on optimizing the desktop and small things like quality font rendering. The distribution is supplied in a Rolling version, built on the basis of the Tumbleweed repository and Packman's own repository. The 999 version

number denotes Rolling releases and is used to avoid clashing with Static releases built from openSUSE releases. The main structure includes proprietary multimedia codecs, and additional proprietary applications are available through the repositories, including Google and Skype repositories. The TLP package is used to optimize power consumption. Installing packages from the Packman repositories is a priority, as some openSUSE packages have limitations due to proprietary technologies. By default, packages from the "recommended" category are not installed after installation. It provides the ability to remove packages with the entire chain of dependencies, as in purge (so that after the upgrade the package is not automatically reinstalled in the form of a dependency).

The new version is notable for the transition to the default Btrfs file system with the inclusion of Zstd compression, as well as the activation of the zRAM mechanism for storing the swap partition in a compressed form and the use of the EarlyOOM engine to respond to the lack of RAM in the system. For AMD Ryzen chip users, the

xf86-video-amdgpu driver is included. They also improved the script for installing language sets. Updated package versions including Linux kernel 5.12.3, Firefox 88, GNOME 40, Cinnamon 4.8.6, Plasma 5.21.5 / KF5 5.82 / KDE apps 21.04, Budgie Desktop 10.5.3, LXQt 0.17, Xfce 4.16 and Mate 1.24.

<https://github.com/geckolinux/geckolinux-project/releases/tag/210517.999>

## FREE NODE IRC NETWORK DRAMA:

05/19/2021 21:14

The team behind the FreeNode IRC network, which is popular with open source and free software developers, stopped maintaining the project and founded a new IRC network, libera.chat, to replace FreeNode. It is noted that the old network, which uses the freenode. [Org | net | com] domains, has come under the control of dubious individuals whose credibility is questionable. The CentOS and Sourcehut projects have already announced the move

of their IRC channels to libera.chat, and the KDE developers are also discussing the move. In 2017, FreeNode Ltd holding was sold to Private Internet Access (PIA), which received domain names and some other assets. The terms of the deal were not disclosed to the FreeNode team. The FreeNode actual domain owner was Andrew Lee. All servers and infrastructure elements remained in the hands of volunteers and sponsors providing the server power to run the network. The network was maintained and managed by a team of volunteers. Andrew Lee's company only owned domains and did not interfere with the IRC network itself. Initially, Andrew Lee assured the FreeNode team that his company would not interfere with the network, but a few weeks ago the situation changed and changes began to occur in the network, of which the FreeNode team never received an explanation. For example, a page announcing an optimization of the governance structure was removed, an advertisement for Shells, co-founded by Andrew Lee, was placed, and work began to gain operational control over the infrastructure and the entire network, including user data.

<https://libera.chat/news/welcome-to-libera-chat>

## WAYWARD - A CUSTOM WRAPPER BASED ON WESTON COMPOSITE SERVER:

20.05.2021

A new release of the custom Wayward 0.8.3 wrapper is available, based on the Weston composite server and the Wayland protocol. The shell is notable for its low memory consumption (50-70 MB of RAM), high operating speed and the use of only four dependencies (weston / wayland, ttf-droid / adwaita-icon-theme, gtk3 and sudo).

A bottom bar is provided that supports auto-hiding and includes an application menu, shortcuts to applications, task icons, clocks, widgets, for example, to control the volume, restart button, shutdown and prevent the monitor from going to sleep while watching a video. The new release adds initial support for multi-monitor



configurations and introduces a battery status indicator

<https://github.com/varmd/wayward>

### PERL 5.34.0 RELEASED:

05/21/2021

After 11 months of development, a new stable branch of the Perl programming language was released - 5.34. During the preparation of the new release, about 280 thousand lines of code were changed, the changes affected 2,100 files, 78 developers took part in the development.

Branch 5.34 was released in accordance with the fixed development schedule approved eight years ago, which implies the release of new stable branches once a year and fixed releases - once every three months. In about a month, the first fix release of Perl 5.34.1 is planned, which will fix the most significant bugs identified during the implementation of Perl 5.34.0. Simultaneously with the release of Perl 5.34, support for the 5.30 branch was dropped, for

which in the future updates can only be released if critical security problems are identified. The development process of the experimental branch 5.35 has also begun, on the basis of which the stable release of Perl 5.36 will be formed in May or June 2022, if Perl 5 does not replace the Perl 7 branch.

<https://www.nntp.perl.org/group/perl.perl5.porters/2021/05/msg260110.html>

### RED HAT ENTERPRISE LINUX 8.4 RELEASED:

05/21/2021

Red Hat has released Red Hat Enterprise the Linux 8.4. Downloads are available only for registered Red Hat Customer Portal users. The Red Hat Enterprise Linux 8 rpm sources are distributed through the CentOS Git repository. Branch 8.x, which will be supported until at least 2029, is evolving in accordance with a new predictable development cycle, every six months at a predetermined time. RHEL's new product development cycle spans

multiple layers, including Fedora as a springboard for new capabilities, CentOS Stream for package access for the next RHEL interim release (RHEL rolling variant), a minimalistic universal base image (UBI, Universal Base Image) for running applications in isolated containers and the RHEL Developer Subscription to use RHEL for free during development.

<https://www.redhat.com/en/blog/stability-plus-innovation-red-hat-enterprise-linux-84-now-ga>

### LAKKA 3.0, FOR CREATING GAME CONSOLES:

05/22/2021

After more than a year of development, the release of Lakka 3.0 has been published. It allows you to turn computers, set-top boxes or single-board computers into a full-fledged game console for running retro games. The project is a modification of the LibreELEC distribution kit, which was originally designed for creating home theaters. Lakka builds are generated for i386, x86\_64 platforms (Intel, NVIDIA or AMD

GPUs), Raspberry Pi 1-4, Orange Pi, Cubieboard, Cubieboard2, Cubietruck, Banana Pi, Hummingboard, Cubox-i, Odroid C1 / C1+ / XU3 / XU4 and etc. To install, just write the distribution to an SD card or USB drive, connect a gamepad and boot the system.

The new release builds on the LibreELEC 9.2 package and is notable for the inclusion of the Vulkan graphics API support on systems with AMD and Intel GPUs and Raspberry Pi 4 boards. They added support for Nintendo Joy-Cons game controllers. They also added support for new devices: Nintendo Switch, Odroid Go Advance, Anbernic RG351P / M, V / Gameforce Chi and boards with iMX6 chips.

<https://www.lakka.tv/articles/2021/05/22/lakka-3.0/>

### RELEASE OF ANTI-X 19.4, A DISTRO FOR LEGACY HARDWARE:

05/23/2021

Lightweight Live-distribution AntiX 19.4, built on the Debian

and designed for installation on outdated hardware, has been released. The release is based on the Debian 10 (Buster), but comes without the systemd manager and with eudev instead of udev. You can choose to use runit or sysvinit for initialization. The default user environment is built using the IceWM window manager, but Fluxbox, JWM, and herbstluftwm are also available to choose from. Midnight Commander, SpaceFM and ROX-Filer are available for working with files. The distribution works on systems with 256 MB of RAM. Size of iso images: 1.3 GB (full, includes LibreOffice), 728 MB (basic), 415 MB (no graphics), and 176 MB (network install).

<https://antixlinux.com/antix-19-4-available/>

## FLOPPINUX DISTRIBUTION AVAILABLE:

05/23/2021

For your floppy, (Not that one!) the first release of the Floppinux distribution. An attempt was made to create a minimalistic distribution that fits in the size of a

3.5-inch floppy disk, using the latest versions of system components, such as the Linux kernel 5.13.0-rc2 and the busybox 1.33.1 utility set.

The size of the boot image is 1.44MiB, in which the kernel is 632KiB and the space components are 552KiB. This leaves 272KiB of free space for user applications. The minimum system requirements are hardware with an i486DX processor and 24 MB of RAM. The kernel and busybox are built using the lowest possible initial configuration ("make ARCH = x86 tinyconfig" and "make allnoconfig"). The kernel supports RAM disk, TTY, printk, ELF and parsing the "#!" Script header. Busybox is built using static linking and including vi, ash, mount, umount, init, less, cat, du, echo, ls, sleep, uname, poweroff, clear, reboot utilities. Syslinux is used for loading.

<https://bits.p1x.in/floppinux-an-embedded-linux-on-a-single-floppy/>

## NYXT 2.0.0 RECONFIGURABLE WEB BROWSER RELEASED:

05/23/2021

The Nyxt 2.0.0 web browser has been published, designed for use by advanced users, for whom almost limitless possibilities are provided to customize and change the behavior of any aspect of working with the browser. Conceptually, Nyxt resembles Emacs and Vim, and instead of a ready-made set of settings. It allows you to change the very logic of work using the Lisp language. The user can override or reconfigure any classes, methods, variables and functions. The project code is written in Lisp and is distributed under the BSD license. The interface can be built from GTK or Qt. Binaries are available for Linux (Alpine, Arch, Guix, Nix, Ubuntu) and macOS.

To improve workflow efficiency, the browser is optimized for keyboard control and supports the typical keyboard shortcuts Emacs, vi, and CUA. The project is not tied to a specific browser engine and uses a minimal API to interact with

web engines. Based on this API, there are layers for connecting the WebKit and Blink engines (WebKitGTK is used by default), but if desired, the browser can be ported to other engines. It includes a built-in ad blocking system. The connection of add-ons written in Common Lisp is supported (the plans are to implement support for WebExtensions, by analogy with Firefox and Chrome).

<https://nyxt.atlas.engineer/article/release-2.0.0.org>

## SECOND RELEASE OF LIBREBOOT:

05/23/2021

After five years this is the second release in the GNU project and has been categorized as "testing" for now, as it requires additional stabilization and testing. Libreboot develops a completely free fork of the CoreBoot project, providing a binary-stripped replacement for proprietary UEFI firmware and BIOS that are responsible for initializing CPU, memory, peripherals and other hardware components. Libreboot is

aimed at creating a system environment that allows you to completely do without proprietary software, not only at the operating system level, but also firmware that provides boot. Libreboot not only removes non-free components from CoreBoot, but also augments it with tools to make it easier for end users to use, creating a distribution that anyone with no special skills can use.

Of the already well-tested devices on which Libreboot can be used without problems, are Intel GM45 chips (ThinkPad X200, T400), X4X platforms (Gigabyte GA-G41M-ES2L), ASUS KCMA-D8, ASUS KGPE-D16 and Intel i945 (ThinkPad X60 / T60, Macbook 1/2). Additional testing is required for ASUS KFSN4-DRE, Intel D510MO, Intel D945GCLF and Acer G43T-AM3 boards.

<https://libreboot.org/news/libreboot20210522.html>

## AV LINUX 2021.05.22:

05/24/2021

**A**V Linux MX Edition 2021.05.22 is out, containing a selection of applications for creating / processing multimedia content. The distribution is based on MX Linux, using the Debian repositories with improvements from the antiX project and its own applications that make it easier to configure and install software. AV Linux also uses the KXStudio repositories with a collection of audio processing applications and additional packages of its own (Polyphone, Shuriken, Simple Screen Recorder, etc.). The distribution can function in Live mode and is available for i386 (3.2 GB) and x86\_64 (3.7 GB) architectures.

The Linux kernel comes with a set of RT patches to increase system responsiveness during audio processing. The user environment is based on Xfce4 with the OpenBox window manager instead of xfwm. The package includes sound editors Ardor, ArdourVST, Harrison, Mixbus, Blender 3D design system,

video editors Cinelerra, Openshot, LiVES and tools for converting multimedia file formats. A JACK Audio Connection Kit is offered for switching audio devices (JACK1 / Qjackctl is used, not JACK2 / Cadence). The distribution is supplied with a detailed illustrated manual (PDF, 72 pages)

<https://www.bandshed.net/2021/05/22/avl-mxe-2021-05-22-iso-update/>

## QMMP MUSIC PLAYER 1.5.0 RELEASED:

05/24/2021

**T**he minimalist audio player qmmp 1.5.0 is out. The collection of plugins that are not part of the main package has been updated - Qmmp Plugin Pack 1.5.0, and testing of the Qmmp 2.0 branch that has migrated to Qt 6 has begun. The program is equipped with an interface based on the Qt library, similar to Winamp or XMMS, and supports the connection of skins from data players. Qmmp is independent of Gstreamer and offers support for a variety of audio output systems to

get the best sound experience. This includes OSS4 (FreeBSD), ALSA (Linux), Pulse Audio, JACK, QtMultimedia, Icecast, WaveOut (Win32), DirectSound (Win32) and WASAPI (Win32) output. The project code is distributed under the GPLv2 license.

<http://qmmp.ylsoftware.com/index.php>

## INKSCAPE 1.1 RELEASED:

05/25/2021

**A**fter a year of development, Inkscape version 1.1 was released. The editor provides flexible drawing tools and provides support for reading and saving images in SVG, OpenDocument Drawing, DXF, WMF, EMF, sk1, PDF, EPS, PostScript, and PNG formats. Inkscape prebuilds are available for Linux (ApplImage, Snap, PPA, Flatpak pending), macOS, and Windows.

<https://inkscape.org/>

## OSGeo-LIVE 14.0 IS OUT:

05/26/2021

OSGeo-Live 14.0 distribution, developed by the non-profit organization OSGeo in order to provide an opportunity for quick acquaintance with various open geographic information systems, without the need to install them. The distribution is built on Ubuntu. The size of the boot image is 4.4 GB (amd64, as well as an image for virtualization systems VirtualBox, VMWare, KVM, etc.).

It includes about 50 open source applications for geomodelling, spatial data management, satellite imagery processing, mapping, spatial modeling and visualization. A quick step-by-step getting started guide is provided for each application. The kit also includes free maps and databases of geographic features. The graphical environment is based on the LXQt shell.

<https://www.osgeo.org/foundation-news/osgeolive-14-0-malena-released/>

## RELEASE OF NFTABLES 0.9.9:

05/26/2021

Nftables 0.9.9 packet filter has been released, which unifies the packet filtering interfaces for IPv4, IPv6, ARP, and network bridging (aims to replace iptables, ip6table, arptables, and ebtables). At the same time, the release of the companion library libnftnl 1.2.0 is out, which provides a low-level API for interacting with the nf\_tables subsystem. The changes required for the nftables 0.9.9 release to work are included in the Linux 5.13-rc1 kernel.

The filtering rules and protocol-specific handlers are compiled into user-space bytecode, after which this bytecode is loaded into the kernel using the Netlink interface and executed in the kernel in a special virtual machine resembling BPF (Berkeley Packet Filters). This approach allows you to significantly reduce the size of the filtering code working at the kernel level and move all the functions of parsing rules and logic for working with protocols into user space.

<https://www.mail-archive.com/netfilter-announce@lists.netfilter.org/msg00230.html>

## So, GLIMPSE DIED...

05/26/2021

The developers of Glimpse, a fork of the GIMP graphical editor founded by a group of activists who are dissatisfied with the negative associations that arise from the word "gimp", decided to stop development and move the repositories on GitHub into the archive category. Currently, the project no longer plans to release updates and stops accepting donations.

After Bobby Moss, the leader and founder of the project, left the project, there was no one among the remaining team able to take his place and continue to keep the project afloat. Bobby was forced to leave the project at the request of the employer, who expressed dissatisfaction with the fact that the development of Glimpse began to affect the performance of Bobby's direct duties in the

workplace (the main job is related to writing technical documentation at Oracle). In addition, due to a change in company policy, Bobby was required to obtain legal confirmation in the absence of a conflict of interest.

<https://glimpse-editor.org/posts/a-project-on-hiatus/>

## ORACLE LINUX 8.4 DISTRIBUTION RELEASED:

05/27/2021

Oracle has published a release of the Oracle Linux 8.4, based on the Red Hat Enterprise Linux 8.4. For downloading without restrictions, an installation iso-image of 8.6 GB in size is distributed, prepared for the x86\_64 and ARM64 (aarch64) architectures. For Oracle Linux, unlimited and free access to the yum repository is open with binary updates of packages with fixes for errors (errata) and security issues. Separately supported Application Stream modules are also prepared for download. The new version offers the release of the Unbreakable Enterprise Kernel



R6U2 , otherwise the functionality of the Oracle Linux 8.4 and RHEL 8.4 releases is completely identical (the list of changes in Oracle Linux 8.4 repeats the list of changes in RHEL 8.4).

<https://blogs.oracle.com/linux/announcing-the-release-of-oracle-linux-8-update-4>

## ALMALINUX 8.4, CONTINUING DEVELOPMENT OF CENTOS 8:

05/27/2021

AlmaLinux 8.4, synchronized with Red Hat Enterprise Linux 8.4, is out. The distro's are prepared for the x86\_64 architecture in the form of a bootable (709 MB), minimal (1.9 GB), and full image (9.8 GB). In the near future, ARM architecture will be supported.

The distribution is considered ready for production deployments and is completely identical to RHEL in functionality, with the exception of changes related to rebranding and removal of RHEL-specific packages, such as redhat-\*,

insights-client and subscription-manager-migration \*. Among the specific changes compared to the first release of AlmaLinux, implementation of support for booting in UEFI Secure Boot mode, support for the OpenSCAP package, creation of a "devel" repository, adding several new App Streams modules and updating the compilers are noted.

The distribution is free for all categories of users, developed with community involvement and using a management model similar to the organization of the Fedora project. AlmaLinux is trying to find the optimal balance between corporate support and the interests of the community - on the one hand, the resources and developers of CloudLinux, which has extensive experience in supporting RHEL forks, are involved in the development, and on the other hand, the project is transparent and controlled by the community.

Rocky Linux and Oracle Linux are also positioned as alternatives to the old CentOS, in addition to AlmaLinux . In addition, Red Hat has made RHEL available free of charge to open source organizations and individual

developer environments of up to 16 virtual or physical systems.

<https://almalinux.org/blog/almalinux-os-8-4-stable-now-available/>

# THE VIRTUALBOX NETWORKING PRIMER

Connecting and Configuring  
Virtual Machines



Robin Catling

## The VirtualBox Networking Primer

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[https://www.amazon.co.uk/VirtualBox-Networking-Primer-Connecting-Configuring/dp/1916119484/ref=sr\\_1\\_1?  
dchild=1&keywords=virtualbox+networking+primer&qid=1600253  
699&s=books&sr=1-1](https://www.amazon.co.uk/VirtualBox-Networking-Primer-Connecting-Configuring/dp/1916119484/ref=sr_1_1?dchild=1&keywords=virtualbox+networking+primer&qid=1600253699&s=books&sr=1-1)

Kobo:

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



# COMMAND & CONQUER

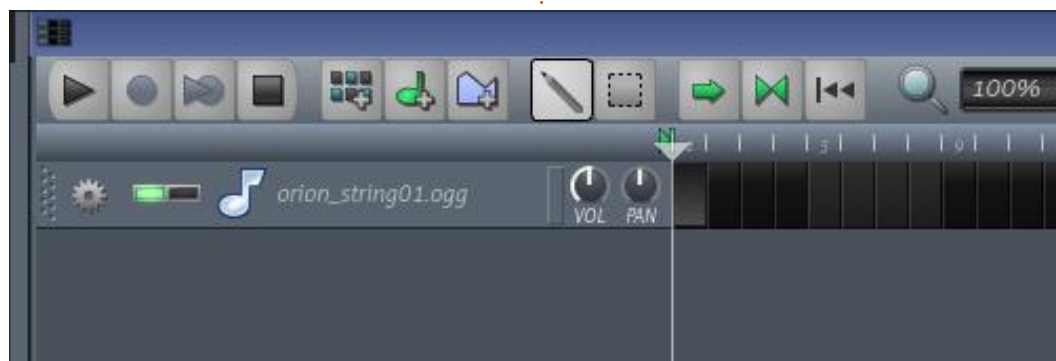
Written by Erik

## LMMS Pt.5

Lots of people rag on LMMS and Linux music making in general, because they don't know JACK. However, you do not need to know JACK to make music. I never use it, but then again I am not musically inclined, I do play the fool at a professional level, so I suppose that counts for something. So if you play instruments and want to connect them to LMMS, let me know and I will see what I can do, but mostly we will be making music with what we have when we download LMMS.

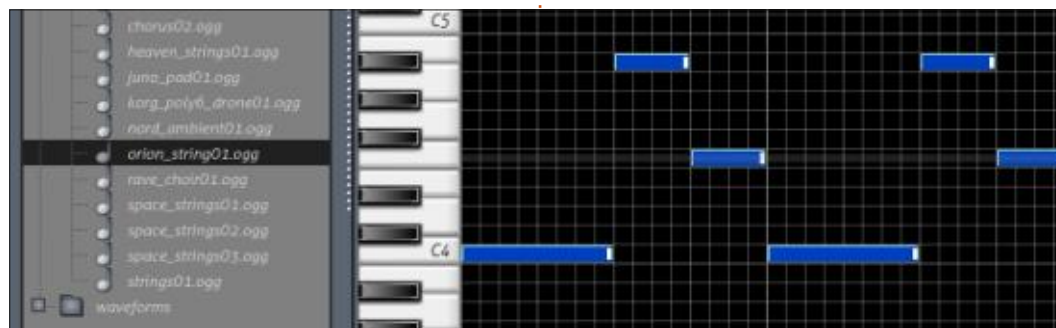
This time we will take a different approach, as not all people learn in the same way. This time we will shoot first and ask questions later. So do as I do and we can make our awful cover/mix together. I have decided on something SIMPLE, yet very recognizable. Ray Parker jnr, Ghostbusters. If you don't know, see: <https://www.youtube.com/watch?v=Fe93CLbHjxQ>

I am going to skip the drums for now – let us just distil the melody. I want you to keep the melody in



your heads, pa-pa-pa paa... Now open LMMS and clear what is there in the song editor. I am going to drag in the "orion string01" and double-click in the very first black block, or right-click > open piano roll. This is where we will make our melody. (You should see it change to a lighter color when you do.)

I have no formal music training so I chose C4 for that base buzz (don't worry, it won't stay here or even on this instrument, we just want to lay down a foundation).

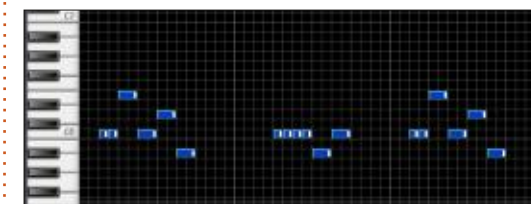


note, the icon should change to a hand, and you can move it if it is in the wrong position. See the image, and monkey see, monkey do.

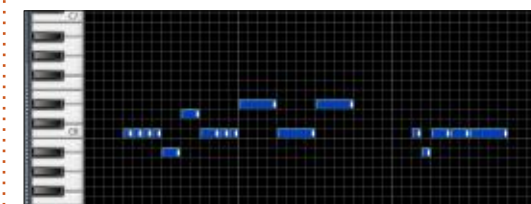
Feel free to hit play at ANY TIME to listen to what you have made.

The melody you can copy from my images too, I will give it three (3) bars at a time, as the magazine is not too wide. Copy, copy, copy, for now. (They follow each other horizontally).

Block 1:



Block 2:





Block 3:



Block 4:



And that is it! Now trim the base buzz down to twelve bars as well.

We will make the file available for download if you don't come right, but I highly recommend you draw the notes yourself. Hit play again. Can you hear the Ghostbusters tune?

This is how \*I make a tune, you may work differently. I am making this tutorial for people who do not have fancy keyboards and MIDI instruments. You should be able to do everything I do with only Ubuntu OS and LMMS. Who knows, you may be the next Italo-disco remix king/queen.

Even if this sounds like a tune, the fun part is messing with it. We want to take it apart and see what is inside, then put it back together as something that is the same – but different. That is how a remix is born.

Remember I told you to keep the melody in your head? Sing it as you play yours. Does it sound right? Then great! If it does not, change it.

Remember to save your work often.

Ready to take it apart?

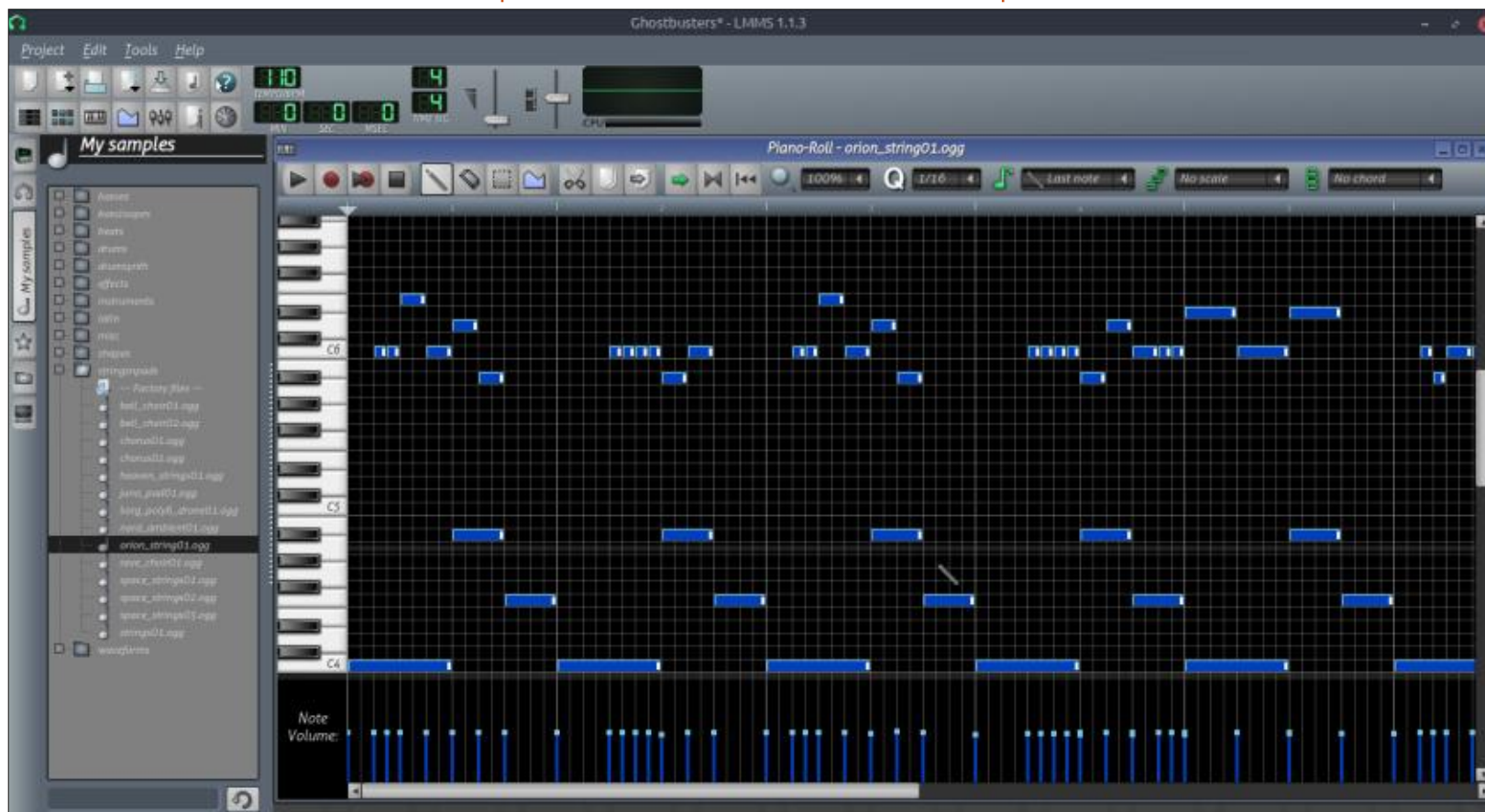
Next issue, we will start deconstructing and rebuilding and adding to make something of our own.

Agree or disagree? Let us know on: [misc@fullcirclemagazine.org](mailto:misc@fullcirclemagazine.org)

Did you jump ahead and do your own thing? Why not send it to us for a mention? We would love to hear from you or hear your tunes.

I am using LMMS version 1.13, but anything above version 0.99 will do.

When you are done, it should look something like this:







# HOW-TO

Written by Greg Walters

## Python In The REAL World Pt.117

As usual, my mind and world has been preoccupied by other things, and my 'Python in the REAL world' (again, as usual) ended up being the to-do item falling to the bottom of the list. I've been SO focused on playing with the Microcontrollers and MicroPython that time has slipped by (again, as usual) and it's now time for me to write the article for the Python side of things.

So this month, I will show you how to use the bext library to control the screen in a terminal window, similar to the curses library, but this will also work on Microsoft Windows as well.

### WHAT IS BEXT?

Bext, according to its homepage, is: "Basically, use Bext if you want to move the cursor around the terminal window and have colorful

text, like some kind of limited curses module (but it works on Windows also.)"

With more and more applications moving to a GUI model, use of "fancy" graphics inside a terminal window is getting more and more rare. However, there is still something to be said for the ability to easily control the cursor, placement of text, and even the color of text within a CLI program.

To install bext, all you have to do is use pip (or pip3)...

```
pip install bext
```

Once you have bext installed, you can begin to use it. Let's create a very simple program to show off its abilities.

### PROGRAM PROJECT #1

```
try:
    import bext
except ImportError:
    print(
        "This program requires the use of the Bext library. Please install it into your Python"
    )
    print('installation by using "pip install bext".')
```

First, a small warning about running projects that use bext in your IDE. Since bext controls a terminal positioning and colors, the terminal that your IDE uses might not work correctly. If you happen to use VS Code, the programs will work, but you need to remember to click in the terminal at the bottom of the Code window. If you are using Geany, it also will work, but the terminal window will most likely scroll beyond the actual program output. I haven't tried IDLE, but I'm guessing that it won't work. Therefore, create your program in your normal IDE, then open a terminal window to test your program from the command-line. Below is the code for our first bext program...

As always, we need to import bext. Since the program won't work without it, I use a try | except to

wrap the import statement. That way, if it fails, the user knows why immediately.

Next, we need to do some setup. We start by setting the background color (bext.bg()) and foreground color (bext.fg()), then clear the terminal (bext.clear()). When you set the background and foreground colors, you have only a few options to choose from. The allowable list of color choices are black, red, green, yellow, blue, purple, cyan, white, reset, random.

Then (next page, top right) we get the width and height of the terminal using bext.size(), since most terminal programs have the ability to change the width and height of the window.

Notice that we print the width and height of the terminal screen. Once we do this, we need to print

on the next line, not the top line, so we will move the cursor to the far left of the screen, the second line (0,1), print something, then move the cursor to column 10, row 6 and print a test line again. Finally, we move the cursor to the bottom line, position 0 and end the program (code is bottom left).

We use the `bext.goto()` command which takes two parameters, x position (column position) and y position (line of the terminal). Save the program to "bext\_demo1.py". When you run the program in a terminal, it should look something like this...

If you happen to be using Gnome Terminal, you can change the size of the terminal by clicking Terminal from the main menu and then the size of the terminal window. I'm sure that most other terminals have the same sort of option.

Bext has only a few commands, and you can find a list of them on the bext homepage at

<https://github.com/asweigart/bext>.

Now that we have some very basic understanding of the bext library, let's move on to something a bit more complex.

## PROGRAM PROJECT #2

If you actually remember the moon landing (1969), you will remember the terminals that we had to use way back then. If not, there were no cell phones, no personal computers, and no internet. Back in those days, computers were all mainframes, and access was via serial terminals – which were just a keyboard and CRT monitor. The monitors had a black background and (usually) green text. There was no mouse, so the programs had to print out a "form" on the screen, then set the cursor to the proper X,Y position for the input. Once the terminal operator entered the correct (hopefully) information, (s)he used the <ENTER> key to move to the next position on the screen and the whole thing repeated, until all the

```
bext.goto(0, 1)
print("This is a test.")
bext.goto(10, 6)
print("This is a test at 10,6")
bext.goto(0, height - 1)
```

```
# get the width and height of the current terminal
bext.bg("black")
bext.fg("green")
bext.clear()
width, height = bext.size()
print(f"Terminal width: {width} height: {height}")
```

information was entered. The program we will create emulates a very small version of that.

This time, we'll simply import the bext library

```
import bext
```

Now (below) we'll create a function to take a string, decide

how to center it based on the width of the terminal window, and print it at the proper position.

Now (next page, top right) we'll create some lists to hold the X,Y positions for each prompt in the form, hold the text that will be printed for each, and the X,Y positions for the placement of the cursor to receive the inputs.

```
def centre(str, line):
    leng = len(str)
    wid, hei = bext.size()
    xpos = wid / 2 - leng / 2
    bext.goto(xpos, line)
    print(str)
```

Next, we'll create a function that will set the colors for foreground and background, and take a parameter to invert those colors ( swap the foreground and background colors)

```
def SetUpScreen(inverted):
    global width, height
    background = "black"
    foreground = "green"
    bext.title = "Bext Test 1"
    if inverted == False:
        bext.fg(foreground)
        bext.bg(background)
    else:
        bext.fg(background)
        bext.bg(foreground)
    width, height = bext.size()
```

Now (below) we'll create a function to handle the input of each data item. We'll simply use the `input()` function for this...

Notice that before we call the `GetEntry()` function to get the data, we call `SetUpScreen()` function again, but this time, we pass a `True`, to invert the colours for each input field.

Save your program as "Bext\_test1.py", and run it in a terminal. It should look something like this...

That's it. You can find the code for the two projects at my github repository <https://github.com/gregwa1953/FCM-169>.

Just as an aside, the `bext` library was written by Al Sweigart. I have

```
def GetEntry():
    global prompts, texts, entryPos
    bext.goto(entryPos[0][0], prompts[0][1])
    fn = input() # Get the first name
    bext.goto(entryPos[1][0], prompts[1][1])
    ln = input() # Get the last name
    bext.goto(entryPos[2][0], prompts[2][1])
    addr = input() # Get the address
    bext.goto(entryPos[3][0], prompts[3][1])
    city = input() # Get the city
    bext.goto(entryPos[4][0], prompts[4][1])
    state = input() # Get the state
    bext.goto(entryPos[5][0], prompts[5][1])
    postal = input() # Get the postal code
```

Finally, we call our functions. Notice that we call `SetUpScreen()` with `False` as the parameter to set the text colors to a black background and green foreground.

```
global width, height
SetUpScreen(False)
Setup()
bext.clear()
centre("Welcome to old time data entry", 0)
FillScreen()
SetUpScreen(True)
GetEntry()
bext.goto(0, height - 1)
print("Entry is done. Thank you!")
```

```
def Setup():
    global prompts, texts, entryPos
    prompts = [(0, 2), (40, 2), (0, 3), (0, 4), (30, 4), (50, 4)]
    texts = [
        "First Name: ",
        "Last Name: ",
        "Address: ",
        "City: ",
        "State: ",
        "Postal Code: ",
    ]
    entryPos = [(12, 2), (51, 2), (9, 3), (6, 4), (37, 4), (63, 4)]
```

At this point, we'll create a function to fill the screen with our prompts.

```
def FillScreen():
    global prompts, texts, entryPos
    bext.goto(prompts[0][0], prompts[0][1])
    print(texts[0])
    bext.goto(prompts[1][0], prompts[1][1])
    print(texts[1])
    bext.goto(prompts[2][0], prompts[2][1])
    print(texts[2])
    bext.goto(prompts[3][0], prompts[3][1])
    print(texts[3])
    bext.goto(prompts[4][0], prompts[4][1])
    print(texts[4])
    bext.goto(prompts[5][0], prompts[5][1])
    print(texts[5])
```

done a book review on his latest book in this issue of Full Circle.

Next month, we'll take a look at extracting text from a PDF file.

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.thedesigntedgeek.xyz](http://www.thedesigntedgeek.xyz).



# HOW-TO

Written by Erik

## Latex - Pt.3

You may ask, "Why another Latex tutorial when there are so many Youtube videos?"

And my answer would be, after watching countless outdated videos that were badly planned and badly executed and gave me no answers, THIS tutorial was born. I am no expert, this is what I wish the tutorials actually taught me.

When it comes to typesetting, LaTeX is the undisputed champ. It outweighs its opponents in the sheer number of options alone. At first, LaTeX is a bit confusing and difficult to use. Not to scare you, but I suggest looking here: <http://tug.ctan.org/info/symbols/comprehensive/symbols-a4.pdf>

Last issue, we explored more basic concepts, one of them was

tagging with labels. We can dive into the nuances of fonts and columns if there is interest, but for now, we soldier on. If you recall, we spoke about tagging your images with fig:2 or whatever, but instead of a figure, we tagged a section. The reason was that I wanted to further explore the issue of images and common mistakes in a totally separate tutorial.

Place your cursor on a new line and this time go to the "wizards" menu item and choose: insert graphic. Follow the prompts to get your 'code' filled in for you. Compile (F6)... What went wrong? Should a wizard not just work? You are welcome to google/duckduckgo the error. I'll wait... Now you would understand the reason for this tutorial first hand. I will also cover – let you do/make – more common mistakes newbies make.

Explanation:

Latex is very "geeky". It is like a programming language. You cannot use graphics (or other add-

ons, we will get to those) without telling Latex that you will be using graphics. It has to be in the pre-processor space too, not anywhere else – that is where all the backslash stuff, written in red, is, before your `/begin{document}` is located at the top. Adding this line, after the documentclass: `\usepackage[demo]{graphicx}` will clear the error, but not solve the problem.

The wizard will automatically use the picture's name as a label, so you can save yourself a lot of time by changing the names of your pictures beforehand. However, I have no picture of snoopy displayed (I used a picture of snoopy). Instead I have a black block. This is the "demo".

Go back, remove the "[demo]" from that line, and use the wizard again. When you compile your document, you will be greeted by a new error. TL;DR – you need to specify a path to a directory that has your images. The full path in the `\includegraphics{}` statement does not work. \*(Even when they

```

\documentclass[a4paper]{article}

\begin{document}
Let us emphasize some \emph{emphasized text}.

Commands can be \textsl{\textbf{nested}}.
\emph{Note how \emph{emphasizing} changes when nested.}

\begin{figure}
\centering
\includegraphics[width=0.7\linewidth]{home/gewgaw/Pictures/snoop}
\caption{}
\label{fig:snoop}
\end{figure}

\end{document}

```

| File                  | Type  | Line    | Message  |
|-----------------------|-------|---------|--|
| textstudio_L28354.tex | error | line 12 | Undefined control sequence. \includegraphics                                 |
| textstudio_L28354.tex | error | line 12 | Missing number, treated as zero. \includegraphics[width=0.7\linewidth]       |
| textstudio_L28354.tex | error | line 12 | Illegal unit of measure (pt inserted). \includegraphics[width=0.7\linewidth] |



# HOWTO - LATEX

say so.) This also has to be added in the pre-processor space at the top. Here again, I was met with frustration, as the “beginners guide to Latex” does not even mention it in chapter Five (Inserting images). This just goes to show you that there are so many things you need to keep track of, that even the experts miss things. Even definitive sources, see here: <https://www.latex-tutorial.com/tutorials/figures/>. Copy that code and see if it will work (spoiler: It won't).

**TIP:** When using images in your Latex documents, I suggest you make a separate folder for them.

Check the type of image you are adding as currently it can be only a .png, a .jpg, or a .pdf file.

Deep breath, we will get there. Sometimes one needs to make mistakes to understand your subject better. Now you can understand my frustration at other tutorials that just do not work. Open your file browser and navigate to the picture you would like to insert. Click and drag it into TeXstudio. You will now see this:

```
\begin{figure}
\includegraphics{Figures/me}
\caption{}
\label{fig:me}
\end{figure}
```

This is why I recommend making a “Figures” folder in your current working folder and dumping your pictures there. This used to trip me up when I was trying to get to grips with LaTeX. Now that you have made the mistake with me, hopefully this will stick.

Now, when you click on run, you should see “Process exited normally”, and the preview should contain your picture. In my case I just included a selfie, but you can

add any image that pleases you. (Does the image make my feet look big?).

Depending on the size of your image, if you do not supply any options, the image will be all over the place, even off the page. Now again, as we learned with the `\documentclass` example, the options go before the curly braces in square brackets.

It is always a good idea to use a larger image than needed as it will show in the end product's quality. We can restrain our image thus: Inside your square brackets, type “w” and the word “width=” should appear with two of the most

common options. Choose “linewidth” and hit F5.

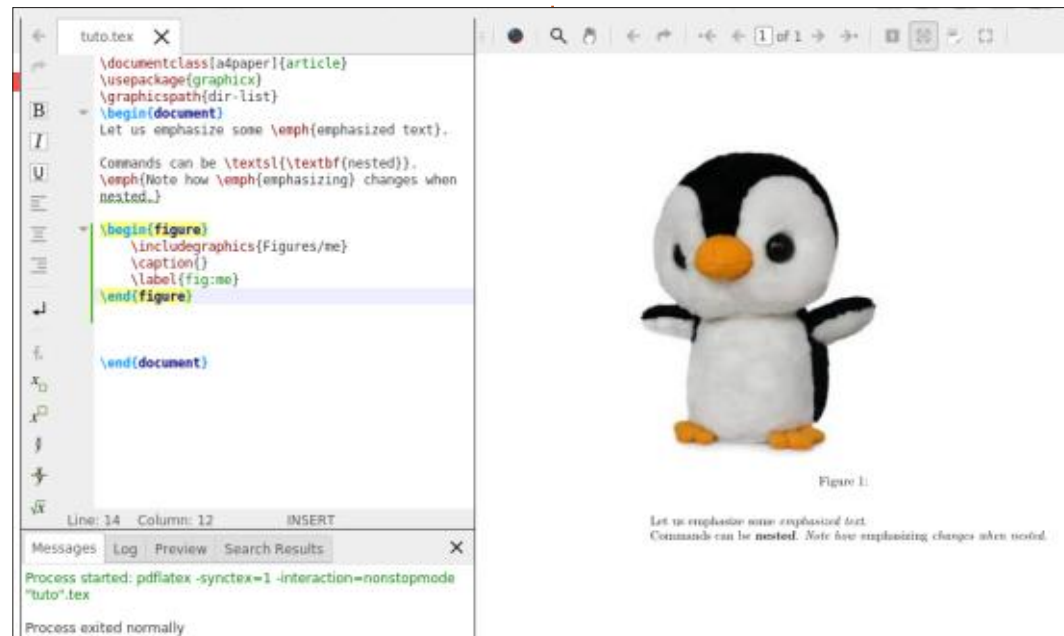
What happened to your image? We have no lines in our document yet, so our line width is 0. This is another common mistake you need to watch out for. Hover your mouse cursor over the word “linewidth” and read the tool tip carefully.

So how would we wrangle our image to a more manageable size? We simply specify the height and width in centimetres. Add the following to the square brackets and press F5 again:

```
height= 3cm,width=3cm
```

Looking better already! Another popular option is angle. This can be a positive or negative integer. Since you are reading FCM, I have no doubt you know how angles work, so I will leave that to you to play with.

My image is currently at the top, what if I want it at the bottom? Right next to `\begin{figure}` simply add a [b] thus:



```
\begin{figure}[b]
\includegraphics[height=
3cm,width=3cm]{Figures/me}
\caption{It's a ME!}
\label{fig:me}
\end{figure}
```

This will put your image at the bottom of the page (NOT at the end of your text). If you want it at the end of the text, you need to use an [h]. If you want the image on its own page, you need to specify the [p] option.

You may have noticed that I added a caption and a label. By default, if you drag the image in, it will use the name of the file in here, be sure to change it to something useful.

Add a section and copy the following code to reference your image (as you type /ref{ TeXstudio should fill in the image reference for you).

```
\section A
```

As you can see in the figure \ref{fig:me} that I have gained weight.

Press F5 again to see your handy work.

It is now easy to refer to any image by its label in this way.

I hope you learned something not only by copying my code, but also by making mistakes.

Join us in the next issue for more LaTeX, where we will tackle more n00b stumbling blocks.

If you have any comments or queries, email us:  
[misc@fullcirclemagazine.org](mailto:misc@fullcirclemagazine.org)



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



# HOW-TO

Written by Eric A. J. Marceau

The context identified by the title is not normal, because it obviously would be a misfit under normal circumstances. However, that situation came up when I was preparing for a future migration to another computer, expecting my current one to give up the ghost any time soon! Naturally, we try to imagine our future state and work towards that in steps, hopefully painlessly. In my case, I hit some potholes on my road to get there.

My approach here is outlined for the less experienced desktop user, but it is completely valid for server-farm context, with the one exception of the last boot step, for which server Admins would have the knowledge and skills to manipulate a live kernel using the modprobe and systemd functions to avoid a reboot.

I currently have a low-end computer with 4 internal drives: 2x2TB, 1x500GB, 1x120GB. I imagined my future to be a laptop with an externally attached USB HDD, so, having had about 25 years experience with Winchester Digital

drives being super reliable for myself, I bought the Winchester Digital 4TB My Book (USB 3, USB type A interface), thinking that would be a good fit. I have that USB HDD plugged in at all times. Unfortunately, my UbuntuMATE 20.04 LTS had its own ideas about that. My `uname -a` reports as:

```
Linux OasisMega1 5.4.0-54-
generic
#60-Ubuntu SMP Fri Nov 6
10:37:59 UTC 2020
x86_64 x86_64 x86_64 GNU/
Linux
```

I have used the same backup program using the rsync utility (currently v3.1.3-8) for about 8 years now, having never found the need to modify the options used. If you're interested, have a look at Listing #1 for a batch job script that it creates for a specific task of mirroring drive /DB001\_F5 to /site/DB005\_F5/DB001\_F5.

Before I go on, please note that without any system tweaks or changes, performing the backup task using tar as follows:

# USB3 HDD On USB2 Hardware

```
cd /DB001_F5 ; tar cf - . |
( cd /site/DB005_F5/
DB001_F5 ; tar xvpf - )
```

will perform a backup onto the 4TB My Book without any problems. I have split my current and new 2/4 TB drives into 300 GB partitions for manageability (I can get into that discussion some other time).

When I try to do backup with the rsync batch script, the job hangs after a random amount of data. Sometimes it hangs immediately after creating the top-level sub-directories of the source partition, other times after about 500 files, and again sometimes after about 50 files. The filetype of the file being copied (hidden file prefixed with ".") when it hangs appears to have no bearing on the

hang/event. In one case for which I did not gather all docs, it even went so far as to completely freeze my Desktop Manager, mouse and all. NOT GOOD!

From having done research (see end of article for sources), I discovered that the issue relates to the "USB Attached SCSI mode", which was introduced with USB 3. Looking at the reference cases, I went about implementing my situational exception (referred to a "Kernel quirk" by the OS programmers).

The first step is to identify the VendorID and ProductID. The simplest method for doing this is by entering the "lsusb" command, which for me gives the result shown below.

```
Bus 007 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 002 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 006 Device 003: ID 046d:c52f Logitech, Inc. Unifying Receiver
Bus 006 Device 002: ID 3938:1032 MOSART Semi. 2.4G RF Keyboard & Mouse
Bus 006 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 005 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 001 Device 002: ID 1058:25ee Western Digital Technologies, Inc. My Book 25EE
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 004 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 003 Device 002: ID 058f:9254 Alcor Micro Corp. Hub
Bus 003 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
```

As you can see, these are rarely listed in order of Bus ID #. Western Digital was very accomodating in providing a verbose and relevant identification string. The applicable line for my case is highlighted, from which the “1058:25ee” identifies

```
VendorID    = 1058 and
ProductID   = 25ee
```

Where use of lsusb gives no definitive unique choice, the alternate method is to examine the outputs from the following command:

```
dmesg | grep usb
```

from which the segment of interest looks like that below.

You have to weed through the data to find the relevant items, which I have highlighted (looking for the values for each of “idVendor=” and “idProduct=”). If that is again too hard to distinguish from the dmesg report, we can force dmesg to cooperate by first powering down your drive using

```
udisksctl power-off -b $
{BlockDevice}
```

where:

```
BlockDevice=`df $
{MountPointPath} | grep /dev
| awk '{print $1}' | cut -c1-
8`
```

then powering that up again. By doing so, all kernel messages related to the drive will be logged as one whole segregated grouping, which would look like that shown on the next page, bottom left.

Once you have your VendorID:ProductID string, you can try to make the changes live by following the guidance hints given in reference [3], or you can do as I did, by adding the necessary quirk specification directly in my “/etc/

default/grub” configuration file. Look for the line containing “GRUB\_CMDLINE\_LINUX\_DEFAULT”, and add the quirk option as per my own line entry:

```
# quirk specification is to
suppress UAS for external
USB3 drive operating on USB2
channel.
```

```
GRUB_CMDLINE_LINUX_DEFAULT="i
pv6.disable=1 usb-
storage.quirks=1058:25ee:u"
```

You see an extra “:u” in the option string for the quirk definition. Per reference [5], that tells the kernel to ignore the UAS option for this device’s driver. Doing it this way is, in my view, the cleanest and simplest way to implement that.

Next, remember to run “update-grub”, then (not for always-live server context) you must reboot to reinitialize the kernel.

Since having done that, my backups run smoothly with my rsync batch scripts as originally conceived. It is my hope that this clarifies what is a little understood handicap emerging from a mix of generations of technology. Naturally, once on my new computer, having a USB 3 port to

```
[ 1.457382] usb usb2: Manufacturer: Linux 5.4.0-54-generic ehci_hcd
[ 1.506919] usb usb2: SerialNumber: 0000:00:13.2
[ 1.760795] usb 1-2: new high-speed USB device number 2 using ehci-pci
[ 2.060831] usb usb3: New USB device found, idVendor=1d6b, idProduct=0001, bcdDevice= 5.04
[ 2.112027] usb usb3: New USB device strings: Mfr=3, Product=2, SerialNumber=1
[ 2.163319] usb usb3: Product: OHCI PCI host controller
[ 2.163320] usb usb3: Manufacturer: Linux 5.4.0-54-generic ohci_hcd
[ 2.163322] usb usb3: SerialNumber: 0000:00:12.0
[ 2.732118] usb 1-2: New USB device found, idVendor=1058, idProduct=25ee, bcdDevice=40.09
[ 2.783910] usb 1-2: New USB device strings: Mfr=2, Product=3, SerialNumber=1
[ 2.792838] usb usb4: New USB device found, idVendor=1d6b, idProduct=0001, bcdDevice= 5.04
[ 2.835133] usb 1-2: Product: My Book 25EE
[ 2.886390] usb usb4: New USB device strings: Mfr=3, Product=2, SerialNumber=1
[ 2.936961] usb 1-2: Manufacturer: Western Digital
[ 2.987978] usb usb4: Product: OHCI PCI host controller
[ 2.987980] usb usb4: Manufacturer: Linux 5.4.0-54-generic ohci_hcd
[ 2.987981] usb usb4: SerialNumber: 0000:00:12.1
[ 3.038662] usb 1-2: SerialNumber: 57583332443630455559524A
[ 3.512793] usb 3-3: new full-speed USB device number 2 using ohci-pci
[ 3.556837] usb usb5: New USB device found, idVendor=1d6b, idProduct=0001, bcdDevice= 5.04
[ 3.615571] usb usb5: New USB device strings: Mfr=3, Product=2, SerialNumber=1
[ 3.667024] usb usb5: Product: OHCI PCI host controller
```



# HOWTO - USB3 ON USB2 HARDWARE

match that of the HDD, that tweak in the /etc/default/grub file can be removed without consequence, being no longer required.

**Listing #1** is on next page.

## REFERENCES:

[1] [https://en.wikipedia.org/wiki/USB\\_Attached\\_SCSI](https://en.wikipedia.org/wiki/USB_Attached_SCSI)

[2] <https://unix.stackexchange.com/questions/437036/odroid-xu4-hdd-dies-after-10-minutes-on-usb-3-0>

[3] <https://unix.stackexchange.com/questions/418326/how-do-i-make-my-seagate-2tb-usb-hdd-work-in-linux>

[4] <https://unix.stackexchange.com/questions/570320/usb-hard-drive-disconnecting-randomly>

[5] <https://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git/tree/Documentation/admin-guide/kernel-parameters.txt?h=v4.14#n4274>

```
[ 8676.092074] usb 1-2: USB disconnect, device number 2
[ 8702.268226] usb 1-2: new high-speed USB device number 4 using ehci-pci
[ 8702.425954] usb 1-2: New USB device found, idVendor=1058, idProduct=25ee, bcdDevice=40.09
[ 8702.425961] usb 1-2: New USB device strings: Mfr=2, Product=3, SerialNumber=1
[ 8702.425966] usb 1-2: Product: My Book 25EE
[ 8702.425970] usb 1-2: Manufacturer: Western Digital
[ 8702.425974] usb 1-2: SerialNumber: 57583332443630455559524A
[ 8702.426542] usb-storage 1-2:1.0: USB Mass Storage device detected
[ 8702.426872] usb-storage 1-2:1.0: Quirks match for vid 1058 pid 25ee: 800000
[ 8702.426965] scsi host5: usb-storage 1-2:1.0
[ 8703.449312] scsi 5:0:0:0: Direct-Access      WD           My Book 25EE      4009 PQ: 0 ANSI: 6
[ 8703.450026] scsi 5:0:0:1: Enclosure          WD           SES Device        4009 PQ: 0 ANSI: 6
[ 8703.454498] sd 5:0:0:0: Attached scsi generic sg0 type 0
[ 8703.454713] ses 5:0:0:1: Attached Enclosure device
[ 8703.454868] ses 5:0:0:1: Attached scsi generic sg1 type 13
[ 8703.458645] sd 5:0:0:0: [sda] Spinning up disk...
[ 8703.459633] ses 5:0:0:1: Wrong diagnostic page; asked for 1 got 8
[ 8703.459640] ses 5:0:0:1: Failed to get diagnostic page 0x1
[ 8703.459645] ses 5:0:0:1: Failed to bind enclosure -19
[ 8704.472326] ....ready
[ 8707.545114] sd 5:0:0:0: [sda] Very big device. Trying to use READ CAPACITY(16).
[ 8707.545472] sd 5:0:0:0: [sda] 7814035456 512-byte logical blocks: (4.00 TB/3.64 TiB)
[ 8707.545477] sd 5:0:0:0: [sda] 4096-byte physical blocks
[ 8707.546603] sd 5:0:0:0: [sda] Write Protect is off
[ 8707.546610] sd 5:0:0:0: [sda] Mode Sense: 47 00 10 08
[ 8707.547727] sd 5:0:0:0: [sda] No Caching mode page found
[ 8707.547738] sd 5:0:0:0: [sda] Assuming drive cache: write through
[ 8707.689298] sda: sda1 sda2 sda3 sda4 sda5 sda6 sda7 sda8 sda9 sda10 sda11 sda12 sda13 sda14 sda15 sda16 sda17 sda18
[ 8707.694846] sd 5:0:0:0: [sda] Attached SCSI disk
```



## Listing #1 (Z\_backup.DB001\_F5.batch)

(run this script using command: nohup nice -n 17 ./Z\_backup.DB001\_F5.batch &)

```
media="/site"
source=DB001_F5

cd /${source}

MirrorROOT=DB005_F5

rsync --one-file-system \
    --recursive \
    --links \
    --perms \
    --times \
    --group \
    --owner \
    --devices \
    --specials \
    --verbose \
    --out-format="%t|%i|%M|%b|%f|" \
    --update \
    --checksum \
    --delete-during \
    --whole-file \
    --human-readable \
    --protect-args \
    --ignore-errors \
    --msgs2stderr \
    ./ ${media}/${MirrorROOT}/${source}/ 2>${media}/Z_backup.${source}.err | tee ${media}/Z_backup.${source}.out

mv ${media}/Z_backup.${source}.out ${media}/${MirrorROOT}/Z_backup.${source}.out
mv ${media}/Z_backup.${source}.err ${media}/${MirrorROOT}/Z_backup.${source}.err
### End-of-Batch
```

# THE DAILY WADDLE

NOPE CAN'T HELP WITH  
PEOPLE PROBLEMS, BUT I CAN  
HELP YOU WITH WINDOZE  
ERRORS



i  
C  
E  
  
B  
A  
R



# HOW-TO

Written by Mark Crutch

## Inkscape - Part 109

There are still a number of changes and new features in Inkscape version 1.0 which I haven't covered over the past few months. In order to get through as many new features as I can, this month I'm going to take a whistle-stop tour of some of the smaller features which don't necessarily require complex examples to demonstrate. Hold on to your hats!

### Y-AXIS INVERSION

I've said this before, and no doubt I'll say it again: Inkscape is not a CAD program, despite offering some CAD-like features. Nevertheless, it has historically behaved the same way as most CAD programs – and even traditional paper-and-pen technical drawing – with regard to the position and orientation of its y-axis. Previous versions of Inkscape placed the origin (the 0, 0 point) at the bottom-left of the canvas, with the positive direction of the y-axis going upwards.

If you come from a CAD, drafting or graphing background,

this may seem perfectly sensible. But Inkscape is really an SVG editor, and SVG is a product of the web world. Web pages grow from the top downwards. Add some more paragraphs to your HTML page and the browser simply extends the scroll bar to let you reach them. SVG works in the same way, with its origin at the top-left of the drawing area (i.e. the browser window), and the positive direction of the y-axis going downwards.

This mismatch between Inkscape's on-screen behaviour and the requirements of the SVG format meant that the coordinates of points viewed in the program would be different to the values that were actually stored in the file. For most users, this wasn't a problem, but when using Inkscape to produce graphics that will ultimately appear on a web page, this mismatch could make life unnecessarily difficult, especially when trying to write JavaScript to dynamically alter the file within a web browser.

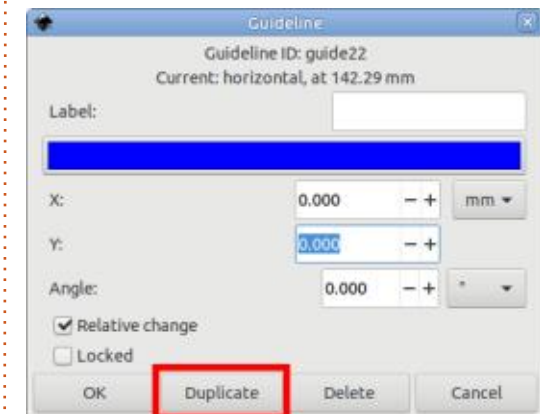
With v1.0, Inkscape now defaults to the SVG standard for its origin and y-axis direction. Should this cause you any problems or confusion, you can revert to the previous behaviour by un-checking the "Origin in upper left with y-axis pointing down" setting in the Interface panel of the Edit > Preferences dialog.

### DUPLICATING GUIDES

Version 1.0 introduces a means of duplicating an existing guide line. The behaviour of this differs between v1.0.x and the release candidate for version 1.1 (the full version of which may have even been released by the time this magazine is published). Let's look at v1.0 first, where the change is rather frustrating and unintuitive.

There's a new "Duplicate" button in the Guideline dialog (opened by double-clicking on an existing guide). This duplicates the current guide, in-place, then closes the dialog. No other changes are made to the duplicate, regardless of what other parameters you set

in the dialog. This can easily lead to confusion as it's not always obvious that there are now two co-positioned guidelines. Double-clicking on the lines will open the dialog again, where you can make changes that will affect one of them.



Suppose, therefore, that you have a horizontal guideline and you wish to create two more parallel guidelines, with 10mm spacing between them. Here are the steps:

- Double-click on the existing line to bring up the Guideline dialog.
- Click the Duplicate button. The dialog closes.
- Double-click on the newly duplicated line (which is on top of the existing line) to open the



dialog again.

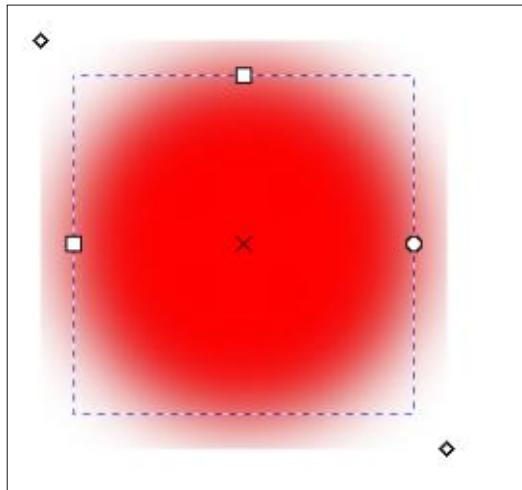
- Enter 10mm into the “Y” field, check the “Relative change” box, and click the OK button. The dialog closes, but you now have two guides on the page, separated by 10mm.
- Repeat all four steps, but starting with your newly duplicated and moved line.

Although the “Relative change” box remains checked between steps, the value in the “Y” field is cleared. This makes it frustrating to create a series of equally spaced guides. If you forget to click the “Duplicate” button before you change the value, you’ll end up moving your original guide by mistake. No amount of hitting Ctrl-Z will undo that mistake: you’ll have to reopen the dialog and move the guide by the opposite amount to get it back to where it started.

Fortunately this feature has been improved in the 1.1 release candidate. In that version you simply open the dialog, put in your relative change, then press Duplicate (rather than OK) to create a duplicate guide with the movement already applied. Much simpler!

### FILTER REGION SIZE

From a frustrating change to a delightful one. In order to reduce the amount of processing required when a filter is applied to an object, SVG includes the ability to set a finite boundary outside of which the filter is no longer calculated. For some filters – particularly those involving large blurs or offsets – the default filter region is too small, resulting in the edges of the filtered content being cut-off with a hard boundary. You can see the effect quite clearly at the sides of this heavily blurred circle.



It’s always been possible to adjust the size of the filter region,

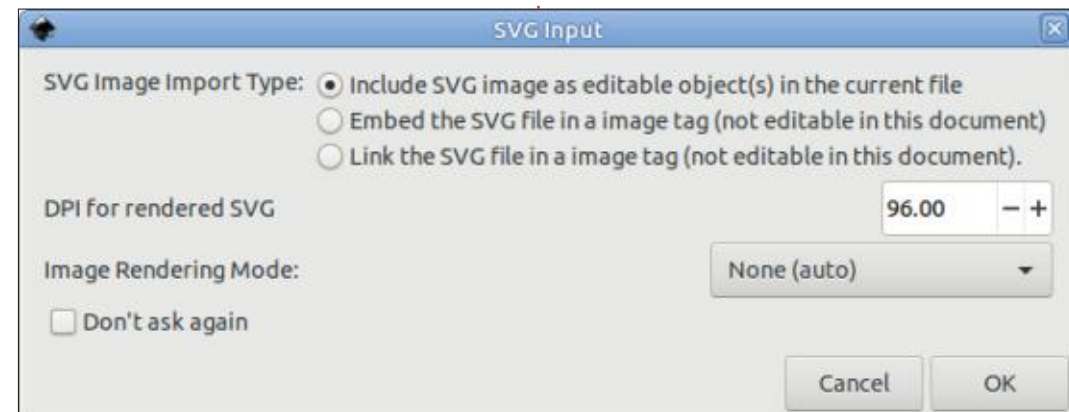
via the Filter General Settings tab of the Filter Editor dialog. But the four fields you’ll find there are less than obvious to anyone who hasn’t read up on the inner details of SVG filters. You’ll also have to guess – or find out through trial-and-error – what the best values need to be for your particular image. Set the filter area too large and you’ll slow down the rendering of your image. Set it too small, or in the wrong position, and you’ll see your filter being cut-off.

With version 1.0, guessing the optimum values for these fields is a thing of the past. With a filtered object selected, switch to the Node tool (F2) and you’ll see diamond-shaped handles at the top-left and bottom-right of your object which can be dragged to directly adjust the filter region on the canvas.

### IMPORTING SVG FILES

Inkscape v1.0 brings some more options when importing one SVG file into another, whether via File > Import, or by just dragging and dropping an SVG file from your file manager onto the Inkscape canvas. By default, a dialog will be presented offering three different ways to import the image, plus a couple of settings that have an effect on only two of the three choices.

The first option will probably be the one most people use. It’s the same way that previous versions of Inkscape imported SVG images: by adding all the objects from the imported image as first-class, editable objects inside the existing document. Images imported in this way are essentially indistinguishable from any other



elements drawn within the Inkscape document.

The second option embeds the SVG content as a base64 encoded string in an `<img>` tag. If those words are gobbleddegook to you, then you're probably not a web developer. In layman's terms, it just means that the SVG content is stored within the file, but as a single image that can be treated much like a bitmap version of the vector image. Indeed, Inkscape actually renders it as a bitmap version, so zooming in, or scaling the image too large, can make it look blocky. More on that shortly.

The third option links to the SVG file. Unlike the prior options, this means that the linked file can be updated outside of Inkscape, and the changes will be reflected in your Inkscape document. But it also means that moving the Inkscape file to another machine will also require the linked image to be sent, and the link potentially updated to reflect the new location of the file on disk. Inkscape also displays linked images as bitmap versions, so the same zoom and scale warning applies as previously.

Although Inkscape displays linked and embedded SVG images as bitmaps, it's important to understand that the linked file, and the base64 encoded embedded content, are both still SVG documents in all their vector glory. For example, even the blockiest looking embedded SVG will look crisp and clean when the containing file is loaded into a web browser.

When linking or embedding an SVG file, you do have some limited control over the bitmap that Inkscape displays as a proxy. The "DPI for rendered SVG" field in the import dialog lets you set the quality of the rasterized content. Higher DPI values will capture finer details from the vector content, which may allow you to scale or zoom with less obvious loss of detail. The "Image Rendering Mode" pop-up lets you select the trade-off Inkscape uses between quality and speed when rasterizing. Most of the time leaving this as "None (auto)" will be good enough.

Because the bitmap representation is just an artefact of the way that Inkscape works, and doesn't affect the underlying vector content, it's even possible to

change the DPI and render trade-off after the image has been imported or linked. Right-click on the image and select Object Properties, or use Object > Object Properties. In the dialog that opens, you can modify the DPI setting or change the rendering mode – with even more options available than in the original import dialog. This means that any blockiness that appears as a result of scaling an imported SVG image can be addressed after-the-fact, so there's no need to worry too much about which values you use when importing.

The defaults for the import dialog are set in the Imported Images pane of the Edit > Preferences dialog (where you'll also find the defaults for importing bitmap images). Should you check the "Don't ask again" box in the dialog, then this is also where you need to come to re-enable it once you discover that the defaults don't always suit your needs.

### MESH GRADIENT POLYFILL

If you save an SVG image containing a Mesh Gradient (see part 59 of this series), Inkscape will

now embed a JavaScript polyfill in the file. As I've remonstrated previously, browsers still don't support mesh gradients in their SVG implementations. This polyfill goes some way towards addressing that shortcoming.

When the SVG file is loaded directly into the browser, or is included within a web page in a way that allows JavaScript to run (i.e. via an `<object>` tag, or by inlining the SVG content), the polyfill code will execute, rendering a bitmap version of the mesh gradient in order to approximate the original appearance of the file.

The idea is to break the impasse that is preventing mesh gradients gaining browser support. The browser vendors won't put time into their implementation due to a lack of files on the internet that use the feature. But few people put such files online because the browsers don't support them.

If you're technically competent enough to be able to put SVG images online in an `<object>` tag, then I urge you to create something with mesh gradients and share it with the world. Only by

## HOWTO - INKSCAPE

increasing the number of such files out there can we ever hope to get native support in web browsers.

### PNG EXPORT

The PNG export dialog has gained an Advanced section which allows you to set a number of parameters for the exported file. Most users will probably never need them, so I won't go into detail about them here, other than to point out that the "pHYs dpi" field is almost certainly what you're looking for before opening a thread on the forum about how Inkscape PNG files don't appear at the "correct" size in some other program. Unless you have a specific need to modify these fields, you can probably leave them as-is. They're hidden in an Advanced section for a reason.



### 3-DIGIT RGB VALUES

RGB colors are often denoted as

6-digit hexadecimal values. But a common shortcut in CSS is to provide just three hex digits, each of which is doubled to produce the final 6-digit (hex) version. So, a value of #1ca would be expanded to #11ccaa. Inkscape now supports entering three digits into the Fill & Stroke dialog to set colors, though the value that is actually stored in the SVG file will still be the full 6-digit version.

The alpha (opacity) will be set to 100% (a value of 255, or #ff in hex), but if you enter a 4-digit hex value, this will be expanded in a similar way to produce both the 6-digit color and a 2-digit alpha value. So, #1cab would be expanded to #11ccaa and #bb.

### SAVE AS A TEMPLATE

It's long been possible to add to Inkscape's set of templates by creating your own SVG file and putting it in the right place on disk. With version 1.0, the process has been made a whole lot simpler with the addition of a "Save Template..." entry in the File menu. Simply create the template you need, setting the page size and units, adding guides, and including

some boilerplate SVG content if you wish, then choose the menu entry and enter a few basic details. Your template will appear in the "New from Template" dialog immediately – you don't even need to restart the program.

It's not all perfect, however. Although the creation dialog has a field for Keywords, there's no indication as to how these should be delimited. From looking at the internals of existing templates, I believe that you need to use spaces between the words. Even doing this won't make them searchable in the "New from Template" dialog, though. It appears that there's a bit of a mismatch between the template files that Inkscape creates using this feature, and the code that displays them in the dialog.

Existing templates store the metadata you provide in some XML elements whose names are prefixed with an underscore. Using the "Save Template..." feature stores them in un-prefixed elements. It's possible to modify the XML content in a text editor, adding the underscores to make the template keywords searchable, but that really shouldn't be

necessary. I'll be filing a bug report about this one.

Even with this glitch, the ability to more easily create templates is a very welcome addition.

### REMOVED FEATURES

A few features have been removed from version 1.0 for various reasons. These are the main ones that you might notice: **File > Import Clip Art:** This feature used to allow direct downloading of files from the OpenClipart.org website, however the API that Inkscape used is no longer operational. The website does indicate that V2 of the API is in beta, so perhaps this feature will return in the future.

**Save As Cairo PNG:** This option has been removed from the Save As dialog as it had limited functionality, and was often confused with the File > Export PNG Image option, which is much more capable.

**UniConvertor:** Inkscape is no longer built with the UniConvertor library. This means that a number of third party file formats can no longer be opened or saved from Inkscape directly. If you do need to work with any of these file types a

possible workaround would be to install the UniConvertor command-line tool and convert the files to the SVG format prior to loading them into Inkscape, or back the other way after saving.

**Selection Sets:** Despite being added in only version 0.91, the Selection Sets dialog has been removed. I described this feature in part 62 of this series, and I would rather have seen it polished and improved than dropped entirely. Performing some types of complex selections in Inkscape can still be tricky, and selection sets offer a way to combine several simpler selections to achieve the same result. Nevertheless, I doubt this dialog will be much missed by most users.

When even the list of small changes fills a whole article, it's clear that Inkscape development is continuing at a pace. The imminent release of version 1.1 will no doubt add to my list of topics to cover, but next month I'll be continuing to describe some of the more significant changes in 1.0.x.



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



# THE DAILY WADDLE

HAVE YOU TRIED  
TURNING IT OFF AND ON  
AGAIN?





Last month, we installed BibleTime and downloaded a set of books to use in it. This month, we'll continue by looking at how to configure it and start looking at the basic functionality.

### CONFIGURING BIBLETIME

Once we've finished with the initial installation of BibleTime, and

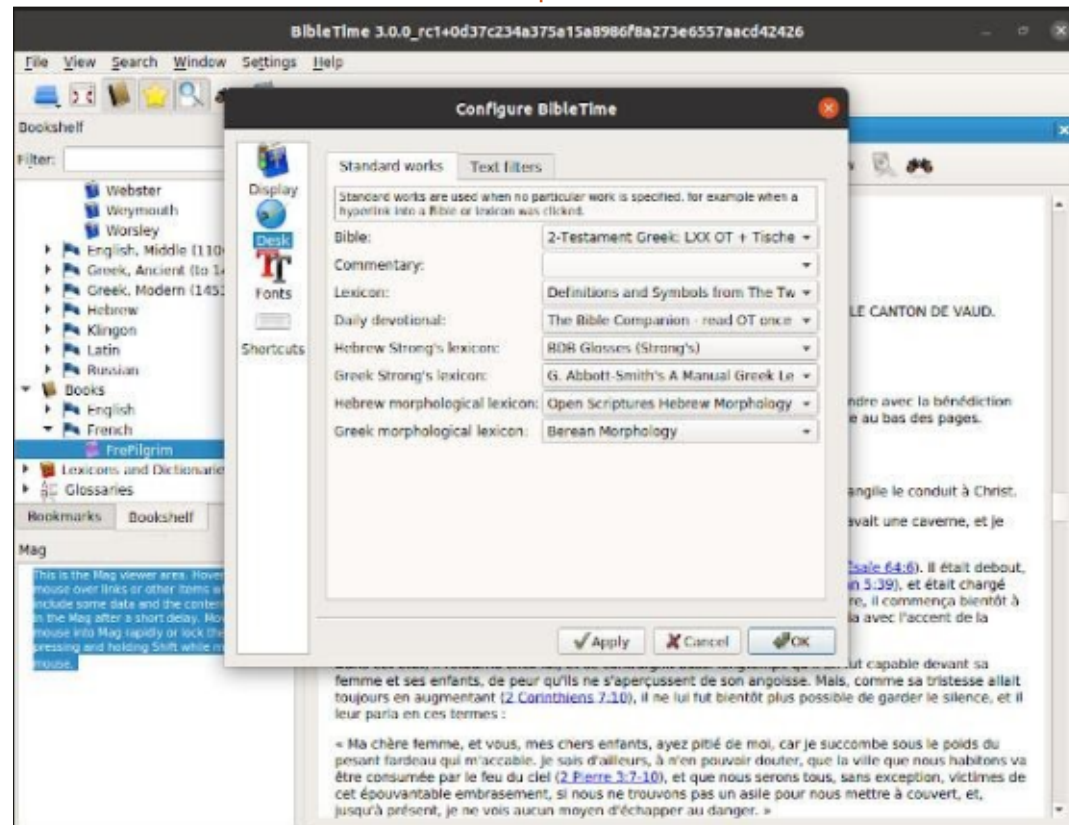
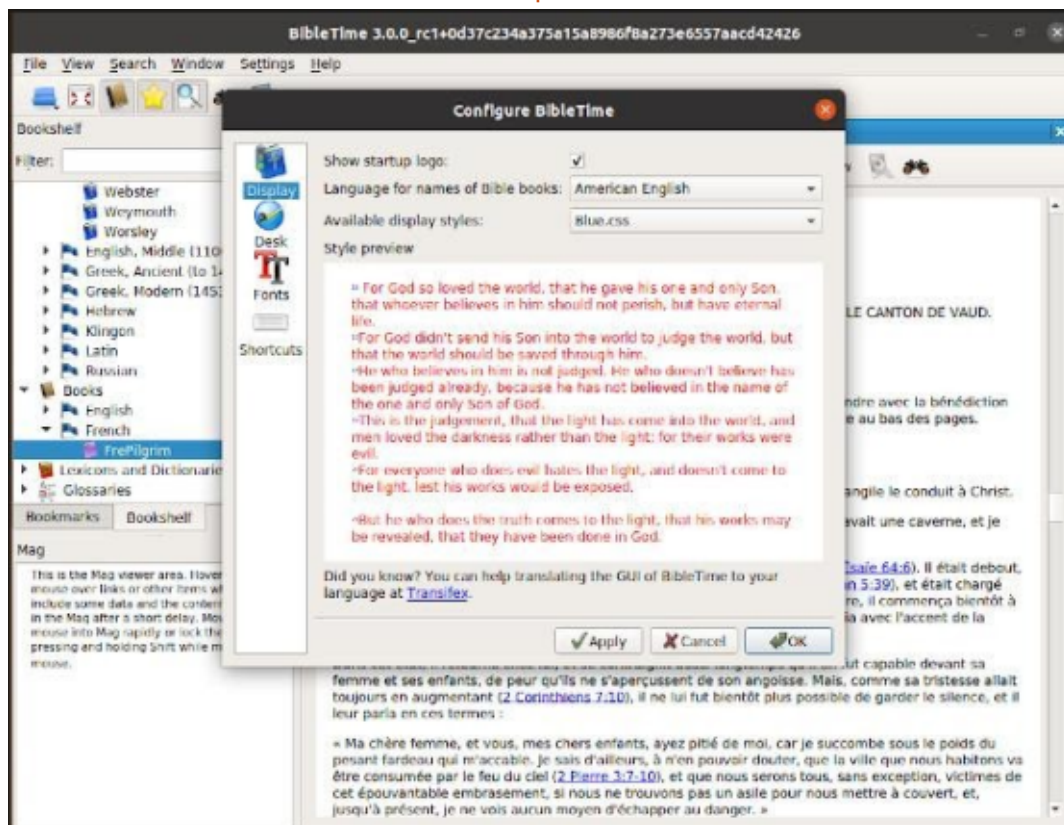
we've done our first session with the Bookshelf Manager to install some books, there are some configuration options to get it working the way we want. From the main screen, go to Settings and click Configure BibleTime. The program will default to Display options:

I was happy with the default

options, so I moved on to the Desk configuration by clicking Desk in the left panel:

Ah, now we're getting to some of the more useful and interesting options. You can choose a default Bible and Commentary, select a Lexicon and a Daily Devotional, and pick your Hebrew and Greek Strong's lexicons along with

Hebrew and Greek morphological lexicons if you're an advanced scholar. It's obvious this application can be used for serious research and cross referencing! I, of course, chose to default to the Bible in the (original) Klingon Language (just kidding, I chose the New English Translation), selected C. H. Spurgeon's Morning and Evening Daily Readings for my Daily





Devotional, and left the other options (that I'm unlikely to use) on their default settings.

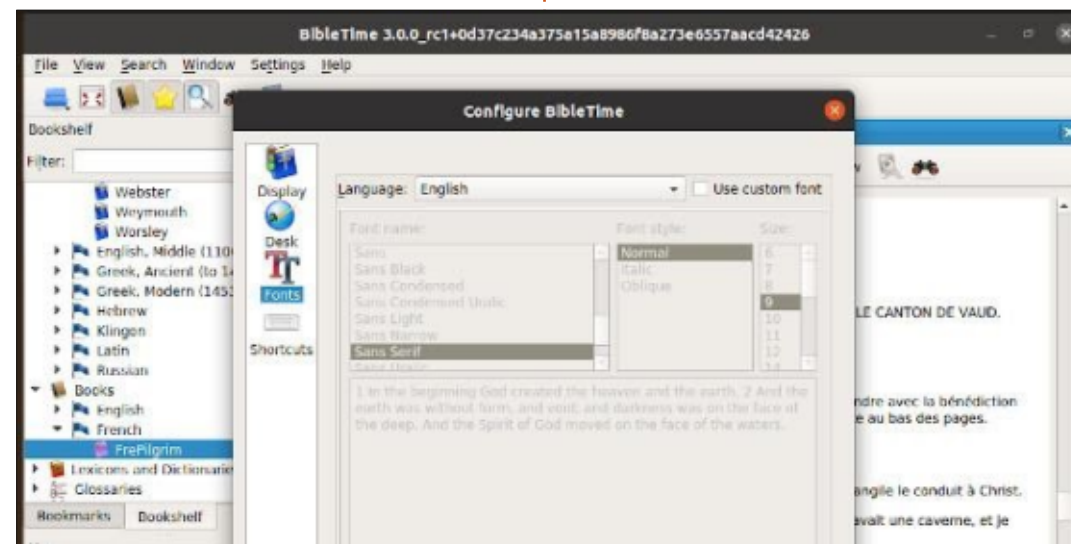
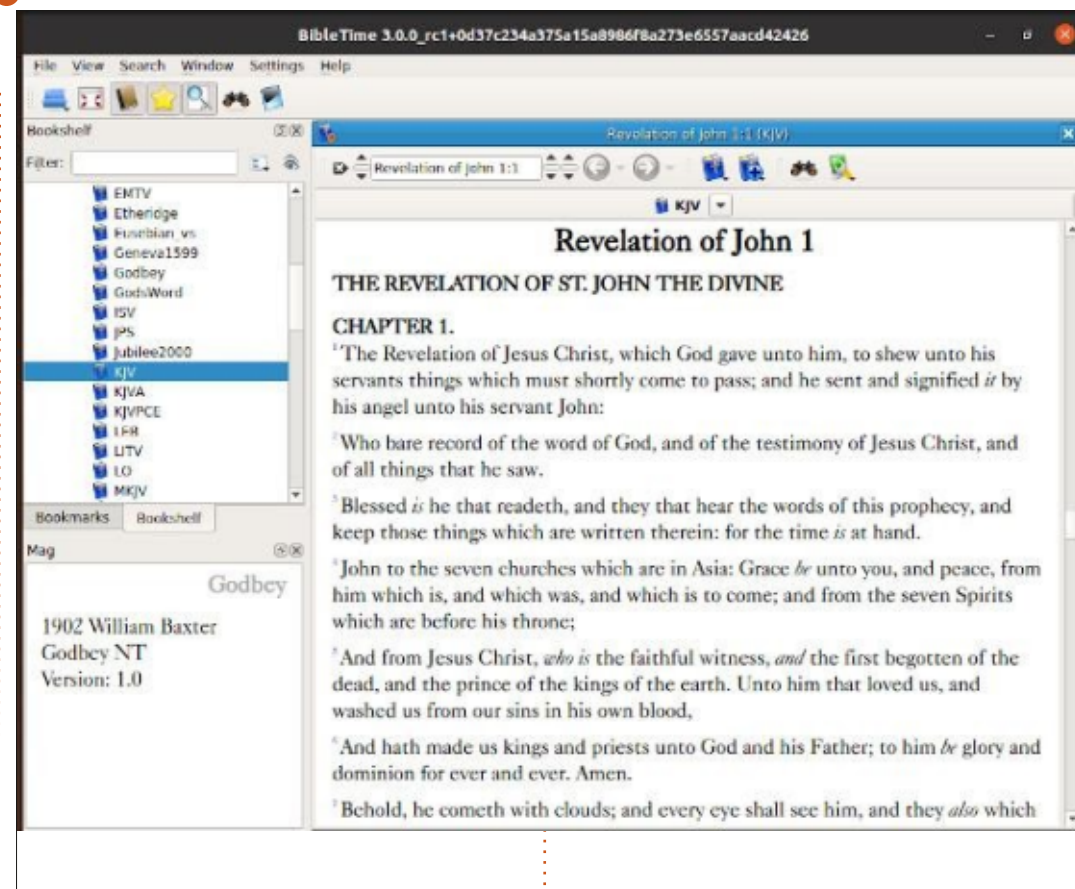
Once I was done with these options, I clicked Fonts on the left panel to see what typeface options I had:

If you want something other than the program's defaults (and I did), you have to select 'Use custom font' in the upper right. Once you click that, the formerly grayed-out options become available. Select English (or your language of choice):

I decided to go with a Caslon font, which is one of the most readable fonts out there, Roman (which in this context simply means

non-italic), and chose a 14 point size to make the default display text a little larger for my tired, old eyes. After configuring the fonts to my liking, I used the navigation pane on the left to choose a Bible. To open a book, let's say the King James Version of the Bible, and the book of Revelations, as a way to check the fonts we just configured, scroll up and down in the left pane. Click the triangles to 'fly out' the available sub-options, then double-click the book you want to open. Use the navigation buttons at top to navigate to the first chapter of Revelations. I was very satisfied with the readability using these font choices:

You can also customize the program's shortcut keys, but I'm



# EVERYDAY UBUNTU

personally always inclined to just learn a program's defaults, so I left those options as is.

## MAIN PROGRAM WINDOW: NAVIGATION AND PARALLEL DISPLAY

Now, back to the BibleTime main interface screen:

Let's back up a bit and get a little more specific on navigating the bookshelf. Up top, the first set of arrows pointing up and down lets you select the book you want by advancing or retreating one entry (example, from Genesis to Exodus, or from Exodus backwards

to Genesis). After selecting the book, its name will show up in the box immediately to the right. To the right of that, there is another set of up and down arrows/triangles that let you select the desired chapter. Just to their right is another set to select the desired verse. However, since these arrows go back and forth only one entry at a time, it is usually easier to use the arrow keys beneath the text box to bring up a menu that allows you to select the exact book, chapter, and verse desired.

Continuing to the right in the interface, there are two backward/forward keys that let you navigate your history the same way a web

browser would. Click on the small arrow keys next to those buttons to open a menu allowing you to go back and forth more than a page at a time. Next, there is a Bible icon that allows you to change the selected book via a drop-down menu.

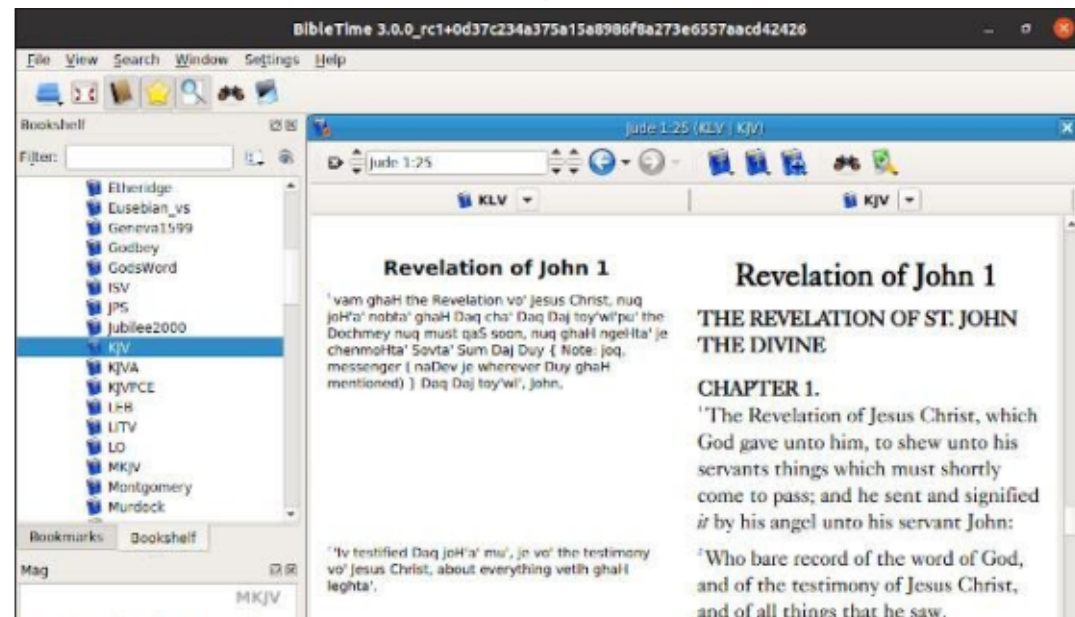
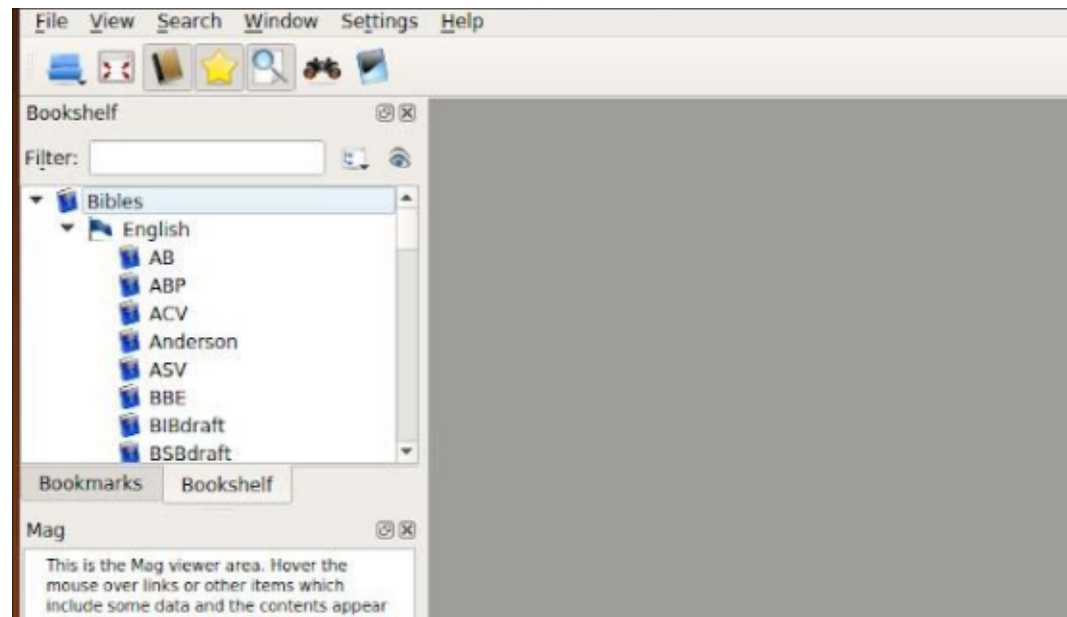
The next icon invokes a great tool: it opens a new Bible's text in a parallel window to the window you already have open. The windows will also scroll in unison to make it easy to compare one version to another. Here, I'm comparing the King James Version to the original Klingon (come on, you all had to know I was going to do this):

Qapla'!

Next month: BibleTime Part Three.



**Richard 'Flash' Adams** spent about 20 years in corporate IT. He lives in rural northwest Georgia, USA, with his adopted 'son', a cockatiel named Baby who now has a little brother, a dusky-headed conure named Skittles.







Many people think that the RPi Pico is a great little microprocessor, but because there is no “direct” support for networking, it’s not really worth it, even at its very low purchase price. I asked the MicroPython group if they thought that there was any update on networking support within MicroPython for the Pico, I was told that, at this point, there is no plan to provide that support, again due to the lack of networking hardware on the Pico. While I, too, am frustrated at the lack of networking, all is not lost. The Arduino Nano RP2040 is still in development and is supposed to have not only Wifi support, but also bluetooth, and a 9-axis IMU, and a microphone that should also support MicroPython. I’m guessing that it should be available in the next month or so, but we still don’t know how much it’s going to cost. For now, a couple of options are already available.

Just as an aside, in late April, 2021, the latest firmware for the RPi Pico, ESP8266, and the ESP32,

is now at level 1.15. You can now download the latest firmware at <https://micropython.org/download/>. That having been said, everything presented this month will work on level 1.14. A list of changes to the various ports can be found at <https://github.com/micropython/micropython/releases/tag/v1.15>.

As I mentioned last month, the ESP-01 WiFi module is available, but so far, I haven’t been able to get it to work well enough to really suggest it. I’m still trying to get somewhere with it but have made only limited progress.

The good folks at Adafruit have a small networking coprocessor called the AirLift that will allow the Pico to connect to the internet and do just about anything that you need. You have to use CircuitPython on the Pico, but the project works well. You can find this project at <https://learn.adafruit.com/quickstart-rp2040-pico-with-wifi-and-circuitpython>.

I have tried this project and it works and works well. There are two big drawbacks for me, however. First, is that the project must be done under CircuitPython. The second is that the AirLift is about twice the price of the RPi Pico.

If you want a pure MicroPython solution that is less expensive, you are NOT out of luck. There is a project by some of the MicroPython developers that fills the bill. You can find the repository at <https://github.com/peterhinch/micropython-mqtt>. Basically, you use the RPi Pico and connect it to a ESP8266 via a 5-wire (plus 5Vdc and ground) interface. This allows the Pico to run things like a temperature sensor and report the data via the Internet to a MQTT server (broker), either local or hosted on the Internet. When I found this (thanks to the MicroPython group), I dropped everything and pulled an ESP8266 NodeMCU board that I purchased shortly after I got the RPi Pico. You can find various ESP8266 boards on the Internet for around \$6.00 USD,

which makes it a reasonably priced option.

## PROJECT OF THE MONTH

So we’ll use this as the project of the month. This project will be broken down into multiple parts, the first will be to use the internal temperature sensor on the Pico to get the temperature, then we’ll set up the ESP8266 board and connect it to the Pico, and finally we’ll send the data via the Internet to a MQTT server. I’ll explain two server options, one based on a local Raspberry Pi computer, and one going to a free Internet server. When we are done, you will know how to use the internal temperature sensor and how to get that data to a MQTT server.

## PART 1 - RPI PICO TEMPERATURE SENSOR

The first logical step is to write a test program that will read the internal temperature sensor on the Pico. We can access the sensor through the ADC (Analogue-to-

Digital Converter) built into the Pico. ADC? Yes. The Pico actually has four ADC options, three available on the GPIO pins, and one internal that is dedicated to the temperature sensor. These are all 12-bit converters.

Using an ADC is really very easy. We provide a voltage into one of the pins – which comes in as a 16-bit unsigned integer – which will be a number from 0 to 65,535. In theory, the value becomes 0 for no voltage and 65,535 for the full 3.3 volts. **Please be sure that your maximum voltage going into the ADC is 3.3 volts DC. Otherwise, you will overload the system and cause the magic blue smoke to escape. This will render the Pico non-functional!**

While this is a nice way to view the range of voltages, and 65,535 is an easy way to visualize the fact that you are receiving the full 3.3 volts, it doesn't quite relate in most people's minds. So, we can apply a little math to convert that value into a value that shows the "actual" voltage being applied to the pin. Since we know that the maximum voltage is 3.3 volts, and we know that when that voltage is applied to the pin, the ADC will respond

with 65,535 at that voltage, we can simply create a conversion factor by dividing 3.3 by 65,535. Now we can see the actual voltage being applied to the ADC input pin. Let's test this by taking 65,535 and multiplying it with  $(3.3 / 65535)$ . That gives us 0.00050355 per unit. So if we have an input of 65535 and we apply our conversion factor, we will get 3.3. Amazing!

So we now know that the temperature sensor within the Pico returns an integer that we can use to get the temperature value. However, there is another formula that is specific to the Pico to get our final value. That formula is:

```
temperature = 27 - (reading - 0.706) / 0.001721
```

Where reading is our ADC value with the conversion factor applied. So assuming the average temperature inside of our house ranges between 22-24 degrees Centigrade, we can assume that our voltage value should be somewhere between 0.7139803 and 0.7107576 (22.36296 and 24.23554 C). The actual voltage reading has a tiny variance. Due to this, many factors can cause the reading to vary quite a bit. Some of

```
while True:
    reading = sensor_temp.read_u16() * conversion_factor
    temperature = 27 - (reading - 0.706) / 0.001721
    temperaturef = temperature * 9/5 + 32
    print(temperaturef)
    utime.sleep(2)
```

this could be due to variance in the voltage provided to the Pico. Many people have commented on the temp sensor in the Pico not being very stable. For our purposes (at least here), it will do us well. I'm sorry for the long dissertation on the way that the ADC works, but I felt you should know.

So, let's code our test program. First, as always, we need to import the needed libraries...

```
import machine
import utime
```

Now we set up which ADC we will be using (remember, the temperature sensor is ADC # 4) and our conversion factor:

```
sensor_temp = machine.ADC(4)

conversion_factor = 3.3 / (65535)
```

We enter a "forever" loop (see above): read the temp sensor, apply the conversion factor, then apply the magic formula to get the

temperature in Centigrade. We print the temperature into the console, and then sleep for 2 seconds before doing it all again. (If you can't think in Centigrade, then apply the formula to convert to Fahrenheit).

If you wish, you can certainly add a display (like we did last month) to provide the reading without having to have Thonny (or your IDE of choice) visible all of the time.

Now that we have that done, let's move on to downloading the MQTT software project.

## PART 2 - SETTING UP THE ESP8266

You can download the software that goes on both the ESP8266 and the Pico from <https://github.com/peterhinch/micropython-mqtt>. Go ahead and download the zip file or clone the repository. If you download the zip file, unpack it

somewhere convenient. Once it's unpacked, you will want to go into the main folder and find the sub folder "bridge". This is where the software for both the Pico (host folder) and the ESP8266 (esp8266 folder) will be found. The other thing that you need to do is to open the file BRIDGE.md. This file contains all the information that you should need to get things up and running.

You know me, though. I'll distill it down as much as I can to get you running as quickly as possible, but you really should read through the md file. If you don't yet have a .md file reader, I suggest Typora which you can find at [typora.io](https://typora.io). I've tried countless .md readers and editors and this is by far the best one that I've found.

The first thing that you need to do is flash the bridge software onto the ESP8266. To do this you need to use a tool called esptool. There are various ways to install esptool, but the easiest way for Python programmers is to use pip (or pip3).

```
pip install esptool
```

or

```
pip3 install esptool
```

Once you have esptool installed, you will need to connect your ESP8266 board to your computer's USB port. Just for safety's sake, make sure that there are no other development boards (like the Pico) connected to your computer AND make sure that Thonny is closed. (If not, the flash might not work.) Once it's powered up, you need to find out what port your linux machine sees the board connected to. In a terminal, type:

```
ls /dev/tty*
```

On my machine, I get a list that is 17 rows long and 6 columns wide. Buried around the middle is the actual port that I'm connected to – which, for me, is dev/ttyACM0. It's important to know this port name, since you need to use it when you enter the CLI command lines. There are two steps, the first is to erase the existing flash memory contents, and the second is to load the modified firmware.

Now, using the same terminal that we just used to find the serial port, enter in the following command, replacing the port with

that of your machine.

```
esptool.py --port /dev/  
ttyACM0 --baud 115200  
erase_flash
```

This usually takes about a minute or so to complete. You should see something like this...

```
esptool.py v3.0  
Serial port /dev/ttyUSB0  
Connecting....  
Detecting chip type...  
ESP8266  
Chip is ESP8266EX  
Features: WiFi  
Crystal is 26MHz  
MAC: 8c:aa:b5:59:40:93  
Uploading stub...  
Running stub...  
Stub running...  
Erasing flash (this may take  
a while)...  
Chip erase completed  
successfully in 16.1s  
Hard resetting via RTS pin...
```

Once the memory is erased, we need to load the new firmware. In the terminal, make sure that you are in the bridge folder and enter the following command (again replacing the port definition with that of your own)...

```
esptool.py --port /dev/  
ttyACM0 --baud 115200  
write_flash --verify --  
flash_size=detect -fm qio 0  
firmware-combined.bin
```

The terminal output should look something like this...

```
esptool.py v3.0  
Serial port /dev/ttyUSB0  
Connecting....  
Detecting chip type...  
ESP8266  
Chip is ESP8266EX  
Features: WiFi  
Crystal is 26MHz  
MAC: 8c:aa:b5:59:40:93  
Uploading stub...  
Running stub...  
Stub running...  
Configuring flash size...  
Auto-detected Flash size: 4MB  
Flash params set to 0x0040  
Compressed 622784 bytes to  
409382...  
Wrote 622784 bytes (409382  
compressed) at 0x00000000 in  
36.1 seconds (effective 137.8  
kbit/s)...  
Hash of data verified.  
  
Leaving...  
Verifying just-written  
flash...  
(This option is deprecated,  
flash contents are now always  
read back after flashing.)  
Flash params set to 0x0040  
Verifying 0x980c0 (622784)  
bytes @ 0x00000000 in flash  
against firmware-  
combined.bin...  
-- verify OK (digest matched)  
Hard resetting via RTS pin...
```

During the flash process, there should be an LED flashing on the ESP8266 board as blocks of the firmware are being written. When the process is finished, the LED



MICRO THIS MICRO THAT

should stop flashing. If it continues to flash, something happened and you need to start again by erasing the firmware and re-installing it.

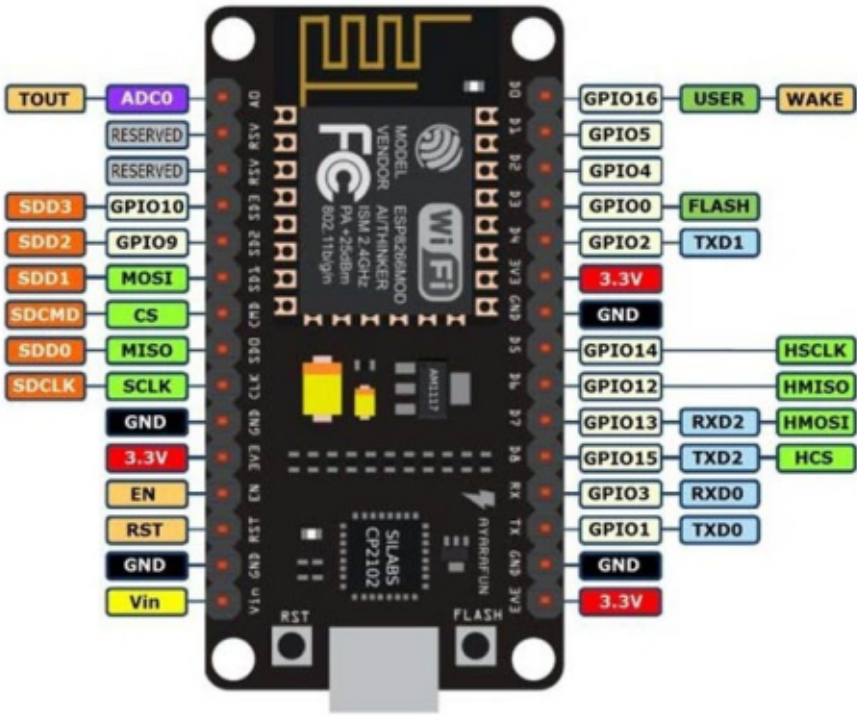
Now we can move on to making the connections to our Pico.

PART 3 - CONNECTING THE PICO TO THE ESP8266

For whatever device you are going to use as the ESP8266 board, you should make sure you download the latest pinout for that board, since the various manufacturers can change the pinouts. In my case, the pinout for the NodeMCU ESP8266 board was found at <https://components101.com/development-boards/nodemcu-esp8266-pinout-features-and-datasheet>.

Now be sure to orient the board and the pinout and begin to place your jumpers. Luckily, the data pins on my NodeMCU board are all marked and they match up with the pins for the Mini in the table below. I verified the wires that I connected to the NodeMCU board at least three times then I made the connections to the breadboard

| Signal | Feather | Mini | Pico | Signal |
|--------|---------|------|------|--------|
| mckin  | 12      | D6   | 18   | sckout |
| mrx    | 13      | D7   | 17   | stx    |
| mtx    | 14      | D5   | 19   | srx    |
| mckout | 15      | D8   | 20   | sckin  |
| reset  | reset   | rst  | 16   | reset  |
| Gnd    | Gnd     | G    | GND  | 0V     |
| 5V     | USB     | 5V   | VBUS | 5V     |



that I had the Pico mounted on and verified them again. What can I say? I HATE to blow up boards. Of course, I did this with the boards all unplugged. I've copied the table here (left) just to make it easy for you.

Host and target must share a common ground. They need not share a common power

source - the order in which they are powered up is not critical. The 5V link enables a USB connection on the host to power the ESP8266.

We will be providing the power for the ESP8266 directly from the Pico. You can see from the wiring diagram on the next page, the 5 volts to power the ESP8266 comes from physical pin 40 – which is VBUS. VBUS provides +5Vdc directly from the Pico's USB connection with your computer. This is important to remember if you ever want to make this a standalone project. You will have to provide the +5Vdc for the ESP8266 from another source.

So now the hard part is done.



## PART 4 - THE PICO SIDE OF THINGS

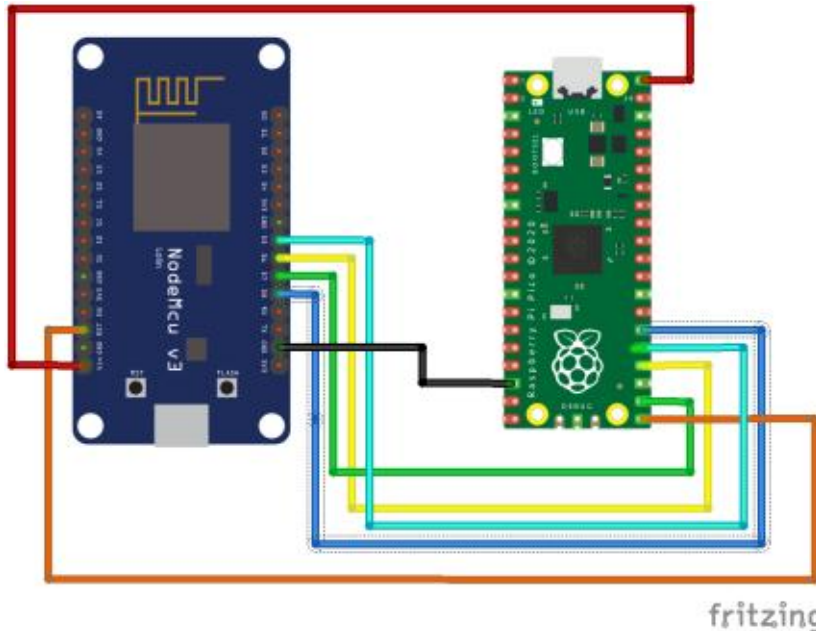
Now, we can start to work on the Pico part of the project. There will be two files that we need to load and modify. The first file is `net_local.py` that is located in the `bridge/host` folder. You can think of this as your secrets file where you store your network router address, network password, and the location of your broker. Here's what it looks like (without the comments). See code top right.

Set the `ssid` field to your network name. Change the

password to the one you use to connect your computer to the network. Finally, for this test, set the broker field to "test.mosquitto.org". Save the file. It should look something like the code shown middle right.

Now you need to load the file `pico_simple.py` from the `bridge/host/generic` folder. We won't be changing too much, but we will make a couple of changes. I'll present the entire file (minus the comments) and will put only the lines that need to be changed or added in bold.

First the import section. There is only one additional import needed



fritzing

```
d = {
    # Customisations: mandatory
    'ssid' : 'my_ssid',
    'password' : 'my_password',
    'broker' : '192.168.0.10',
}
```

```
d = {
    # Customisations: mandatory
    'ssid' : 'Your_SSID',
    'password' : 'Your_password',
    'broker' : 'test.mosquitto.org',
}
```

here...

```
import uasyncio as asyncio
from pbmqtt import MQTTlink

import hw_pico as hardware #
Pin definitions. Heartbeat on
Pico LED.

import net_local #
WiFi credentials

from utime import localtime,
gmtime, time
```

The next line doesn't get changed.

```
qos = 1 # for test all
messages have the same qos.
```

Next, we will add a function to read the Pico internal temperature sensor (next page, bottom left). It's almost the same as the test

program we did in part 1 above. The only differences are that we are adding a call to `printline`, I've commented the 2 second sleep statement since we don't need that and then the return temperaturef to the calling function. If you want to send out temperatures in Celsius, then return the variable temperature.

The publish function is where we actually send data out to the MQTT server. There are only two lines that need to be added. The first line prints the fact that we are sending something out and the second line actually publishes the internal temperature. Notice that this line is all one line (right).

There is one point that I want to make here. The line above – await

# MICRO THIS MICRO THAT

`asyncio.sleep(10)` – sets the delay between the publish messages. If you want to speed it up, then set the sleep value to less than 10. If you want a longer delay between the publish messages, make it a bigger value.

```
MQTTlink.will('result',
'simple client died')
```

```
mqtt_link =
MQTTlink(hardware.d,
net_local.d,
wifi_handler=(cbnet, ()),
verbose=True) #, debug=True
```

try:

```
asyncio.run(main(mqtt_link))
```

finally:

```
asyncio.new_event_loop()
```

When you run the program, you should see the onboard LED flash about every second, and in the

shell window you should see...

```
>>> %Run -c $EDITOR_CONTENT
initiator resetting
target...
initiator awaiting sync...
initiator synchronised.
Starting...
13:52:01 Status: Will
registered
13:52:01 Status: awaiting
default network
13:52:06 Status: awaiting
broker
13:52:07 Status: connected
to broker
13:52:07 Status: running
About to run user program.
cbnet: network is up
13:52:07 Status: WiFi up
13:52:07 Status: publish OK
Sending 2
13:52:07 80.67992
Sending 3
13:52:18 78.9946
```

If you want to verify the fact that you are actually sending the messages out to the Broker, open a terminal on your computer (assuming you've installed the mosquitto packages) and type:

```
def get_internal_temp():
    sensor_temp = machine.ADC(4)
    conversion_factor = 3.3 / (65535)
    while True:
        reading = sensor_temp.read_u16() *
        conversion_factor
        temperature = 27 - (reading - 0.706)/0.001721
        temperaturef = temperature * 9/5 + 32
        printtime()
        print(temperaturef)
        # utime.sleep(2)
        return temperaturef
```

```
async def publish(mqtt_link, tim):
    count = 1
    while True:
        await mqtt_link.publish('result', str(count),
        False, qos)
        count += 1
        print('Sending {0}'.format(count))
        await
        mqtt_link.publish('InternalTemperature', str(get_internal_
        temp()), False, qos)
        await asyncio.sleep(tim)
```

This is the printtime function that prints the time, then prints whatever you want, all on the same line. Kind of like this. 14:39:09 79.83727

```
def printtime():
    print('{:02d}:{:02d}:{:02d} '.format(localtime()[3],
    localtime()[4], localtime()[5]), end='')
```

The rest of the program is presented here just so you can make sure that you are in sync with my stuff.

```
def cbgreen(topic, msg, retained):
    print('Green', msg)

def cbnet(state, _): # Show WiFi state. Discard
mqtt_link arg.
    print('cbnet: network is ', 'up' if state else
    'down')

async def main(mqtt_link):
    asyncio.create_task(mqtt_link.subscribe('green', qos,
    cbgreen)) # "LED" control qos 1
    asyncio.create_task(publish(mqtt_link, 10))
    while True:
        await asyncio.sleep(10)
```

```
mosquitto_sub -h
test.mosquitto.org -t
InternalTemperature
```

actually start sending, but when you are, here's what it will look like.

```
greg@earth:~$ mosquitto_sub
-h 192.168.1.67 -t
InternalTemperature
```

Nothing will happen until you

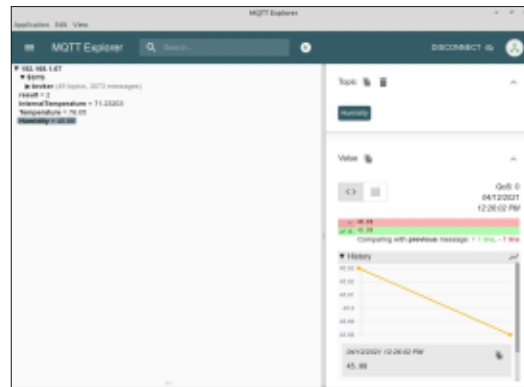
79.83727  
78.15195  
78.9946  
78.9946  
78.9946

One word of warning. I've noticed that every time I have to stop the program to make a change or just to restart it, I have to unplug the Pico, wait a few seconds, then plug it back in. I'm not quite sure why.

I'd suggest that you consider setting up a MQTT server on another machine, like a Raspberry Pi. It's simple to do. I previously wrote a three-part article in Full Circle issues 132, 133 and 134 which will get you going if you need it.

## BONUS PART 6 - MONITORING YOUR MQTT COMMUNICATIONS

Yes, I'm providing a bonus part this month. I'm going to explain how to get and use a fantastic program called MQTT Explorer to monitor the communications between your Pico and the MQTT Server, wherever it is located.



You can find it at <http://mqtt-explorer.com/> and download it as an ApplImage from: <https://github.com/thomasnordquist/MQTT-Explorer/releases/download/0.0.0-0.4.0-beta1/MQTT-Explorer-0.4.0-beta1.ApplImage>

It's really easy to get set up and start monitoring your communications to the MQTT server. Since all we are sending is temperature values, you can also see the data as a graph.

You can find the code we've written and modified at my github repository at [https://github.com/gregwa1953/FCM169\\_MicroThisMicroThat](https://github.com/gregwa1953/FCM169_MicroThisMicroThat)

## FINAL THOUGHTS

Just so you know, I'm going to put the RPi Pico "on pause" so to

speak, and look at another popular microcontroller, the ESP-32. This will be in the form of the SparkFun Thing Plus ESP-32 WROOM (<https://www.sparkfun.com/products/15663>) which you can pick up for around \$21.00 USD. You can find other clone type boards for around \$11.00 USD if your budget just won't go the extra cost. We'll be using a SSD1306 OLED display as well as the BMP180 and an Adafruit SI7021 Temperature/Humidity module (<https://www.adafruit.com/product/3251> – about \$9.00 USD) to show the different ways of programming the two modules. While you are thinking about things, you might consider getting a few Stemma QT/Qwiic cables. There are two types I would suggest:

- The first has the molex on both ends, which makes quick work of connecting I2C devices to the Thing Plus (<https://www.adafruit.com/product/4210>) and other types of microcontrollers.
- The other has the molex plug on one end and regular male pins for use on a breadboard (<https://www.adafruit.com/product/4209>).

We'll be coming back to the RPi Pico in a couple of months, since I've got LOTS of goodies that can

be done with the Pico.

Also, I'm working on a list of "important must have" sensors and displays along with sourcing and packaging. I'll try to get that started for you in next month's article as well.

Well, I've taken up way too many pages of the magazine this month, so I'm going to wish you luck and happy times.

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



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





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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-17, our sixteenth stable update to the system! OTA-17 will be available for the following supported Ubuntu Touch devices over the next week:

- LG Nexus 5
- OnePlus One
- FairPhone 2
- LG Nexus 4
- BQ E5 HD Ubuntu Edition
- BQ E4.5 Ubuntu Edition
- Meizu MX4 Ubuntu Edition
- Meizu Pro 5 Ubuntu Edition
- BQ M10 (F)HD Ubuntu Edition
- Nexus 7 2013 (Wi-Fi and LTE models)
- Sony Xperia X
- Sony Xperia X Compact
- Sony Xperia X Performance
- Sony Xperia XZ
- Sony Xperia Z4 Tablet
- Huawei Nexus 6P
- OnePlus 3 and 3T
- Xiaomi Redmi 4X
- Google Pixel 3a
- OnePlus 2
- F(x)tec Pro1

- Xiaomi Redmi 3s/3x/3sp (land)
- Xiaomi Redmi Note 7
- Xiaomi Redmi Note 7 Pro
- Xiaomi Mi A2
- Volla Phone
- Samsung Galaxy S3 Neo+ (GT-I9301I)
- Samsung Galaxy Note 4

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-17".

## NEW DEVICES THIS CYCLE

With this update we have new devices officially joining the release cadence! This means that these devices will now have a "Stable" update channel available in System Settings -> Updates -> Update Settings -> Channels. You can install Ubuntu Touch on these devices using the UBports Installer:

Xiaomi Redmi Note 7 Pro by Alberto  
Xiaomi Redmi 3s/3x/3sp (land)

by "areyoudeveloper"

If you're a porter with a near-ready device that is not in the above list, make sure it can be installed with the UBports Installer and has an entry on [devices.ubuntu-touch.io](https://devices.ubuntu-touch.io).

## WHAT'S NEW?

Before we start, we thought we'd share our newest video production with you: A love letter to our community, from our community on YouTube. This video tells the story of many of our contributors (and, therefore, our community): who we are, how we got here, and why we do what we do. Maybe you'll see a bit of yourself in the people we interviewed... I sure did.

As promised in the OTA-16 release post, this release is where we slow down for a bit. We're working hard to bring you Ubuntu Touch based on Ubuntu 20.04. However, this release is still based on Ubuntu 16.04. Since most of our time is spent on Ubuntu 20.04,

there's less time to review and merge fixes and new features for the regular OTA releases. With that said, we've got a few neat new things to show off!

Ubuntu Touch now has support for NFC hardware in most of our devices running with Android 9 hardware compatibility, including the Pixel 3a and Volla Phone. NFC support gives app developers the ability to read or write NFC tags; or even to communicate with another device using the protocol. People have already been thinking up ideas for how to use NFC features to read from passive medical monitors... This is a feature that seems to make people very excited. You can find some demo apps for this feature on Alfred's GitHub, [ut-nfcd-p2p-demo](#) showcases support for two Ubuntu Touch devices communicating while [ut-nfcd-ndev-demo](#) shows off reading and writing NFC tags.

Camera flash, zoom, rotation, and focus was fixed on many supported Ubuntu Touch devices, including the OnePlus One. This fix

was discovered almost entirely on accident... It was brought back into our mainline development from our android 9 branches, and only a few days later did anyone discover its effects on the older devices.

A new Macedonian keyboard layout was added by "Boriseto." Lionel fixed word prediction services failing to load on the swiss-french and english-dvorak keyboard layouts.

In device-specific news, Libertine containers will now be set up correctly on the OnePlus 3. The Pixel 3a now has working thumbnail generation, vibration works immediately on startup, and its battery life is much improved (my Pixel 3a XL just idled with WiFi and cellular on for 2 days, and still had 20% left in the tank). We worked around an issue with trust-store and online-accounts on the Nexus 4 and Nexus 7 - opening these features no longer freezes the devices, but you may need to retry the operation to get it to work correctly. Automatic screen brightness was fixed on the Volla Phone (for real this time).

We've updated Mir from v1.2.0 to v1.8.1. We have had no reports

of breakage related to this update, which is a great testament to the software's stability.

And as always, we'd like to thank Joan for the OTA-17 release mascot, the tangram bee. This release involved a lot of hard work by many individuals and introduced new ways to communicate.

### WHAT'S NEXT?

We've made great progress on Ubuntu Touch based on Ubuntu 20.04. We are now able to launch Lomiri, launch apps to display in Lomiri, and launch apps via a systemd user session. The problem is that all of these are separate! Putting them all together will bring us much closer to our first public milestone for the project: providing the first Ubuntu Touch image based on Ubuntu 20.04.

Don't worry, your phone won't be moving to a new Ubuntu base until we're sure the software is ready. But we're happy with the progress we've made so far, and each task completed unblocks several others. This is allowing us to work faster and faster.

Ubuntu Touch OTA-18 will be another release based on Ubuntu 16.04. It will also be another smaller release like this one. However, you can be sure it'll be packed with thoughtful features and fixes contributed by the UBports Community.



# THE DAILY WADDLE

DON'T WORRY, I'LL  
TELL EVERYONE IT WAS  
COVID-19...





In the world of software development, a distinction is made between various stages of software during its production process. A piece of code that has just been made up may be referred to as pre-alpha, and should really be considered as no more than work-in-progress. Once the application or library has evolved to the point that an end-user could potentially use it more-or-less as it is supposed to work, then it goes into alpha status. This does not mean it is finished, but needs some level of user interaction with the software and its developers to detect and eliminate bugs. It then goes on to beta status, where more user testing and bug detection goes on. The actual difference between alpha and beta depends a little on how things are organized for that particular project, but, in general terms, alpha is usually tested in-house by members of the business or organization that is producing the application, while beta testing is performed by a larger community. There is also a question of feature freeze, which is the point in time at which no

further features will be added to the software before final release – all modifications being limited to just making sure the features already incorporated into the product actually work. Alpha software does not usually have any freezing applied to it, and some features may morph as development goes on. Beta software usually is frozen to some extent, in the sense that major modifications should—in theory—no longer be considered until the time comes for the next release. Finally, a further stage called a Release Candidate may be distributed as a final check before the production-ready version of the software is made public, though not all organizations actually do so.

How does this work for Ubuntu distributions? In actual fact, each team (Ubuntu, Xubuntu, Ubuntu Budgie...) has different philosophies and ways of implementing the software release model described above. To complicate facts further, specifics have also been known to change between versions. To take an

example, at the time of writing, both Ubuntu 20.04 and Ubuntu 20.10 have been made public as production-ready distributions, the first as a long-term-support (LTS) version to be supported for five years or more, and the second as a standard version with support of nine months or until July of 2021.

While these are being used in production by users, the next version of Ubuntu—called Hirsute Hippo, or Ubuntu 21.04—is being prepared. Slated for final release at the end of April of 2021, a beta version should appear on or about April 1st 2021. Features will have been frozen a week earlier. The complete release schedule can be seen through the following link: <https://discourse.ubuntu.com/t/hirsute-hippo-release-schedule/18539>

So, what about earlier development releases of Hirsute, those that are made available between this project's inception at the end of October 2020 and the beta version of April 2021? Previous versions of Ubuntu have,

at times, been released in an alpha version. This is no longer the case. Instead, a kind of rolling development version is made available on a daily basis, with the ISO files to be found here: <http://cdimage.ubuntu.com/daily-live/current/>

The first of the two links should be considered specific for Hirsute Hippo, and will need to be updated as future versions roll around. However, the second link—to daily images—has been stable for some years and, in time, will probably point towards future development versions of Ubuntu – whatever they may be called. ("Irritated Ibis"? Just guessing at this point.)

For all practical intents and purposes, these daily builds can be considered as alpha software. The only departures from standard software development are the fact that new versions are being published on a day-to-day basis (not just at a single point in time), and that the testing process is being extended to all potential users of the system (not just in-



house staff or developers).

On to the main question: should you consider downloading, trying out and eventually installing this pre-production software? Well, perhaps, but do it knowing precisely what purpose it has, and which caveats to take into account. Let us start with the latter:

- Be aware that things may not work as expected, or even break themselves and other parts of the software stack. The system may fail catastrophically, with no warning, and has the potential to wipe any and all data on your drives. In short, any version of a Ubuntu distribution that is not published specifically as a final, production-ready version should NOT (emphatically NOT) be used on your daily computer, or on any machine that holds data you care about. Period.

- Some aspects of the system — which software is present, and how it is configured— may change as it goes through daily builds and beta. So, do not take an alpha version as the final product. Do not bet your money or your time on it. It is just the best you can hope for at the time being, if you need to plan ahead on how you will use this version of Ubuntu when it comes

out in its final form.

With that out of the way, you should be considering testing an alpha or daily build version of Ubuntu in the following cases:

- If you are developing a piece of software that will need to work seamlessly on the next version of Ubuntu. Testing it on daily builds of the distribution is a great way of ensuring compatibility. Do so frequently, as different versions of the new distributions appear, and also on beta when that comes out. If all goes well, then you can have some confidence your software will work fine on the definitive version on release. Naturally, this is relevant mostly for software developers.

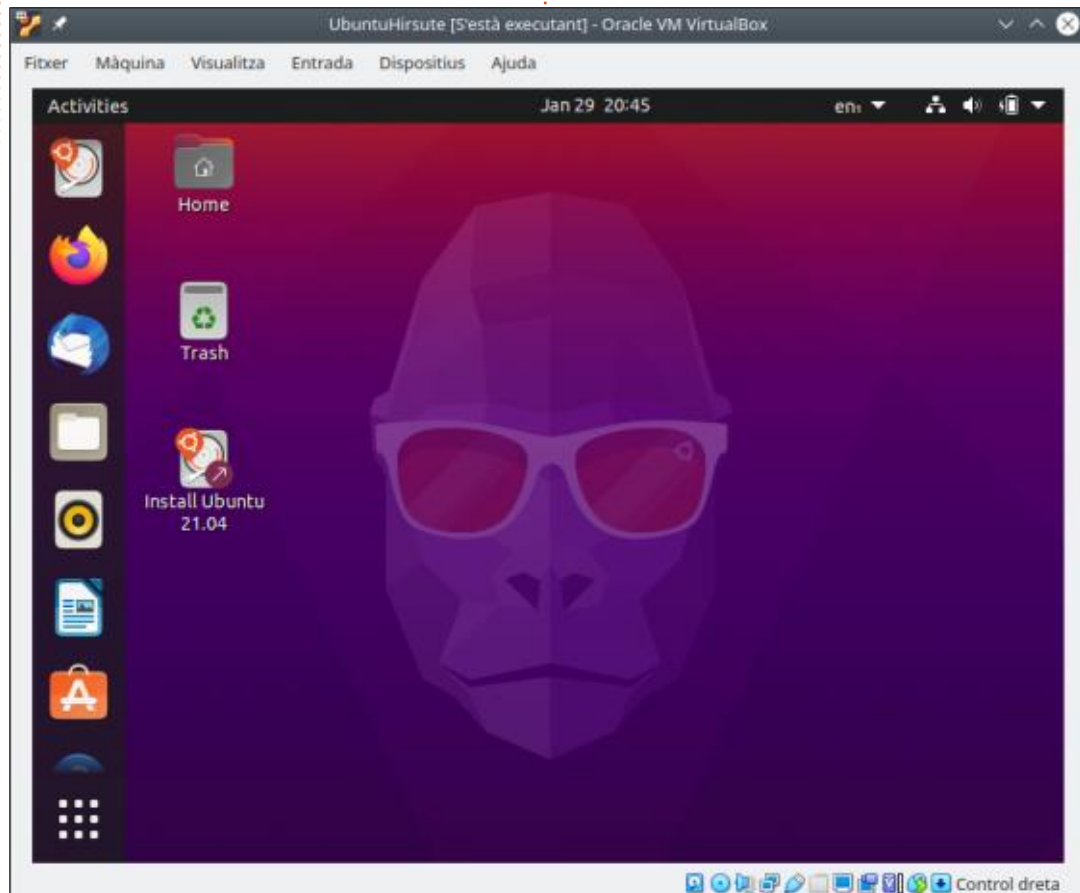
- If you have a specific piece of hardware that is known to cause issues under Linux in general, or Ubuntu specifically, being able to test that hardware with daily builds is a great way of ensuring that compatibility is maintained. This may be the case even with consumer-grade hardware, with some graphics chipsets and wifi cards being the most typical offenders. This will be relevant for organizations with specific hardware needs, or even individual users that have problematic

equipment.

So, once you have decided you need to try out a daily build, how to do so without putting your computers or data at risk? The first way is actually recommended for software developers, and consists of using a virtual environment such as VirtualBox to boot the ISO file. Anything that goes on within the alpha distribution does so within the tightly controlled virtual

environment, and cannot affect files on your computer proper. The distribution to be tested can be reviewed merely as a live distribution, or installed to a (virtual) disk and updated periodically there for more testing.

In the case of Hirsute Hippo, we can see that the daily build I downloaded actually works quite well within the virtual environment. As a side-note, we



can see that specific backgrounds for this version have not yet been incorporated as of late January 2021, but will be done later on in the process — one would suppose, with a hippo-inspired theme in substitution of the gorilla.

However, neofetch does confirm we are actually working on the new version of Ubuntu 21.04, and not ye olde gorilla version 20.10:

The second way to test daily builds is on actual physical hardware. This is what you need to do if ensuring hardware compatibility is an issue. Here, there is no way around the fact we need to try out the daily build on an actual computer. Ideally, this computer would be a test machine equipped with the hardware we are nervous about compatibility that is dedicated to testing. Naturally, most individuals can scarcely afford to have such a dedicated computer, though the practice is more relevant in organizations with a large number of similar machines. If your park consists of 60 PC-type desktop computers used by members of your organization for daily work, then having computer number 61

of a similar type in the IT department just to test out new software before putting it on staffers' machines is something of a must. See it as an insurance policy of sorts.

But even private individuals may have an old laptop lying around unused that, in the worst case, can be reformatted with no loss of data. This is our best option to try out alpha grade software in

general, and Ubuntu daily builds in particular. The photo is of an old Acer Aspire 11" laptop I use for these purposes. This is actually the only use I have for it, since both the battery and the internal hard drive connector on the motherboard (SATA connector) are long out of commission.

A more compromised situation arises when you have no other choice but to run alpha-grade

software on your daily computer. This is really not ideal. At the very least, make a backup of your data — or several backups — before messing around. Even better: it is good practice to actually physically disconnect your hard drive before proceeding, just to ensure your working environment is not affected. Swapping out your hard drive for another drive that will be used only for testing purposes makes sense, since you will be able

```

root@ubuntu:/home/ubuntu# neofetch

      .-/+00SSSS00+/- .
    `:+SSSSSSSSSSSSSSSS+:`
      -+SSSSSSSSSSSSSSSSyySSSS+-
    .OSSSSSSSSSSSSSSSSSSdMMMMySSSSO.
    /SSSSSSSSSSSShdmmNNmmyNMMMMhSSSSSS/
    +SSSSSSSSShmydMMMMMMMNddddySSSSSSSS+
    /SSSSSSSSShNMMMyhhyyyyhmNMMMNhSSSSSSSS/
    .SSSSSSSSdMMMNhSSSSSSSSShNMMMdSSSSSSSS.
    +SSSShhhyNMMMySSSSSSSSSSSSyNMMMySSSSSSSS+
    ossyNMMMNyMMhSSSSSSSSSSSSShmmhSSSSSSSSO
    ossyNMMMNyMMhSSSSSSSSSSSSShmmhSSSSSSSSO
    +SSSShhhyNMMMySSSSSSSSSSSSyNMMMySSSSSSSS+
    .SSSSSSSSdMMMNhSSSSSSSSShNMMMdSSSSSSSS.
    /SSSSSSSSShNMMMyhhyyyyhdNMMMNhSSSSSSSS/
    +SSSSSSSSsdmydMMMMMMMNddddySSSSSSSS+
    /SSSSSSSSSSShdmNNNNmyNMMMMhSSSSSS/
    .OSSSSSSSSSSSSSSSSSSdMMMNySSSSO.
      -+SSSSSSSSSSSSSSSSyySSSS+-
    `:+SSSSSSSSSSSSSSSS+:`
      .-/+00SSSS00+/- .

root@ubuntu
-----
OS: Ubuntu Hirsute Hippo (development)
Host: VirtualBox 1.2
Kernel: 5.8.0-36-generic
Uptime: 4 mins
Packages: 1851 (dpkg), 6 (snap)
Shell: bash 5.1.0
Resolution: 800x600
WM: Mutter
WM Theme: Adwaita
Theme: Adwaita [GTK3]
Icons: Adwaita [GTK3]
Terminal: gnome-terminal
CPU: Intel i7-6500U (1) @ 2.591GHz
GPU: 00:02.0 VMware SVGA II Adapter
Memory: 1032MiB / 1984MiB
  
```



## MY OPINION

to come back to your regular operating system and files by just swapping drives back again. However, it should be stressed that running alpha software on a production computer is never a great idea, and should be avoided if you are not a rather experienced system administrator (and experienced systems administrators will avoid doing so at all costs... which is, actually, all you need to know to avoid making

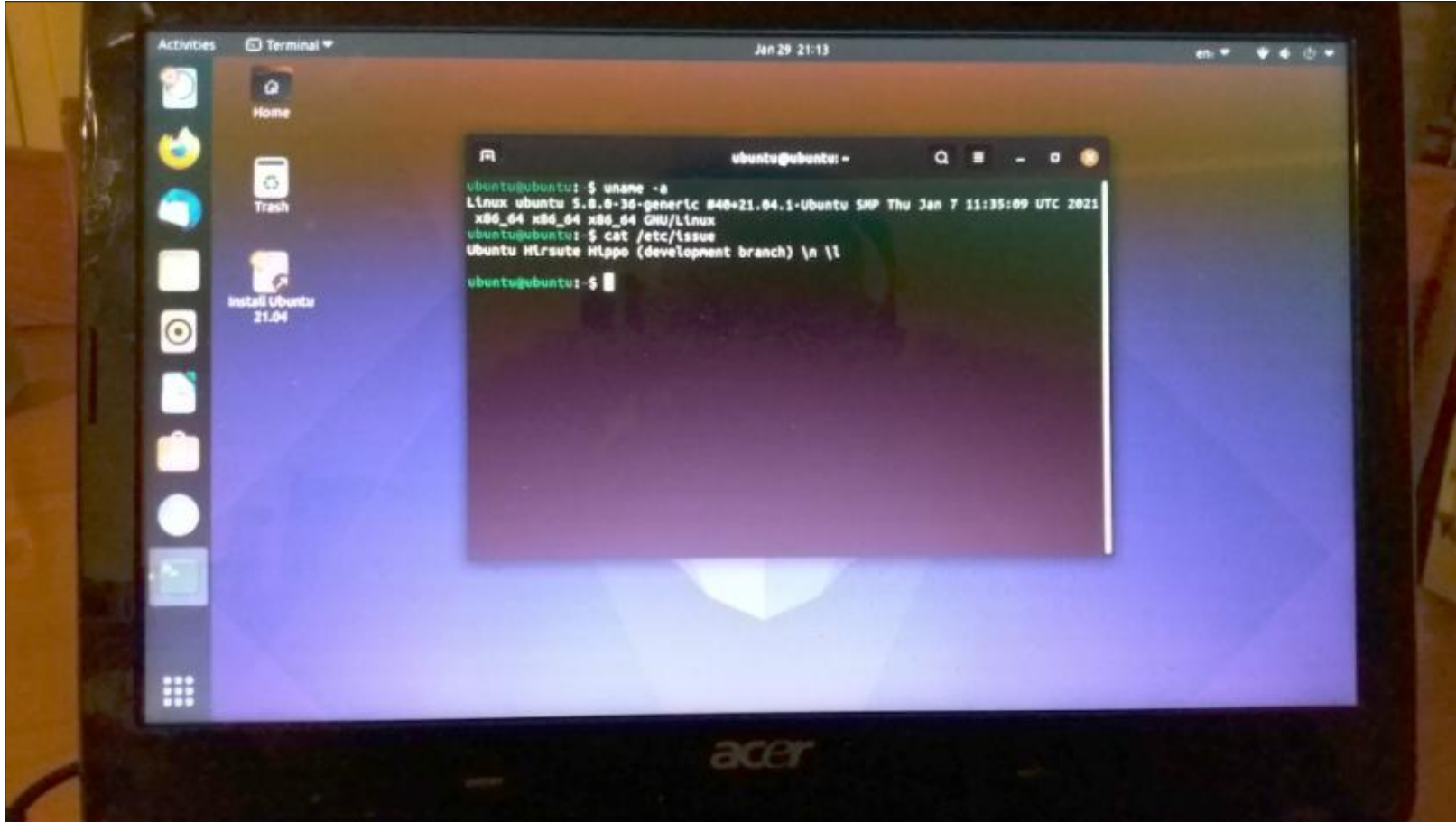
a bad decision).

So, coming back to the main question: should you consider downloading, trying out and eventually installing this pre-production software? By all means, do so — but do it knowing precisely what purpose it has, on an appropriate platform (Virtualbox or a dedicated computer), and making sure there is no danger for your data. Any feedback you can

give the developers —by filing bug reports— may be of help to make the distribution better and safer for regular users.

But, if you are at all uncomfortable with what has been laid out in these lines, just stick to regular production releases. It will be good to know that daily builds and beta releases are done, and our favorite distribution is widely tested by a variety of people in

different situations and on a diversity of platforms before software gets to your hands. Some would in fact argue that this is precisely the main strength of open-source software in the first place.



**Alan** holds a PhD in Info and the Knowledge Soc., teaches engineering at Escola Andorrana de Batxillerat, given GNU/Linux courses at the Uni of Andorra and taught systems admin at the OU of Catalonia.



# HOW-TO

Written by Ronnie Tucker

# Write For Full Circle Magazine

## GUIDELINES

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

## RULES

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

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

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

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

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

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

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

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

## TRANSLATIONS

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

## REVIEWS

### GAMES/APPLICATIONS

When reviewing games/applications please state clearly:

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

### HARDWARE

When reviewing hardware please state clearly:

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

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





# REVIEW

Written by Adam Hunt

## Ubuntu 21.04

Ubuntu 21.04 is the middle release of three “standard” releases on the road to the next long term support release. This 22 April, 2021 release is the second step towards Ubuntu 22.04 LTS, the next long term support version, due out in April, 2022.

Ubuntu 21.04 is the 34th version of Ubuntu and the eighth one since the move to the Gnome 3 desktop with Gnome Shell. This release is supported for nine months, until January, 2022.

### INSTALLATION

I downloaded Ubuntu 21.04 via bit torrent, did a SHA256 sum test on it to make sure it was downloaded correctly and then used UNetbootin to write it to a USB drive for testing.

This version does not do a file system test on boot-up from a USB drive, not even as an option, which is unusual and may be related to the use of Wayland by default in this release.

When running from the USB stick, Ubuntu 21.04 runs fast and smoothly. Ubuntu continues to use a highly modified form of the Gnome Shell that looks and works much like the old Unity interface did. The application windows even have minimize and maximize buttons added, which Gnome otherwise removed. The desktop has a slim top bar with the date and time, along with other key controls. In a lot of ways, the degree of modification required does show how much functionality is lacking in Gnome that needs addressing to create an efficient

desktop.

### SYSTEM REQUIREMENTS

The recommended minimum system requirements for Ubuntu 21.04 have not changed since 20.04 LTS and remain:

- 2 GHz dual core processor.
- 4 GiB RAM.
- 25 GB of hard-drive, USB stick, memory card or external drive space.
- Screen capable of 1024x768 pixel screen resolution.
- Either a CD/DVD drive or a USB

port for the installation media.

- Internet access is useful, but not essential.

### NEW

The first thing you will see on boot-up is the hippopotamus themed wallpaper, since this release is Hirsute Hippo. The wallpaper is very, very dark. The number of alternate wallpapers has been cut down to a bare minimum of four this time, all of them with hippopotamus graphics or photos. If you don't want a hippopotamus on your desktop, there is always the option of using your own choice of wallpaper instead.

Other than new wallpaper, this version of Ubuntu does not introduce many new user interface changes and instead focuses on hardware support through a new version of the Linux kernel, version 5.11.

Linux 5.11 includes support for Intel Rocketlake and DG1 graphics,



# REVIEW

as well as AMD Vangogh, Green Sardine, and Dimgrey Cavefish graphics, along with many other enhancements. It is worth noting that Ubuntu Server 21.04 has lots that is new, and that seems to be where a lot of the development work is being focused these days.

This release does have a few new items for desktop users, however, including an implementation of the Wayland display server protocol by default, in place of X11, something that has been many years coming. Wayland should run automatically on all hardware, except those using Nvidia graphics cards, which will still default to X11. Wayland does seem to run seamlessly and should

give improved performance over X11.

Proper drag-and-drop functionality between the file manager and the desktop has also been restored and works well. It was deleted in Gnome 3.28 and many users were not happy with that as it limited the user's choice of how to make use of their desktop.

Ubuntu 21.04 has updated developer tools, too, including GCC 10.3.0, binutils 2.36.1, glibc 2.33, Python 3.9.4, Perl 5.32.1, LLVM 12, go 1.16, rustc 1.50, Ruby 2.7.2, and OpenJDK 11, with OpenJDK 16 provided, but not used for package builds. These are all features that

most regular desktop users will not notice much in daily use.

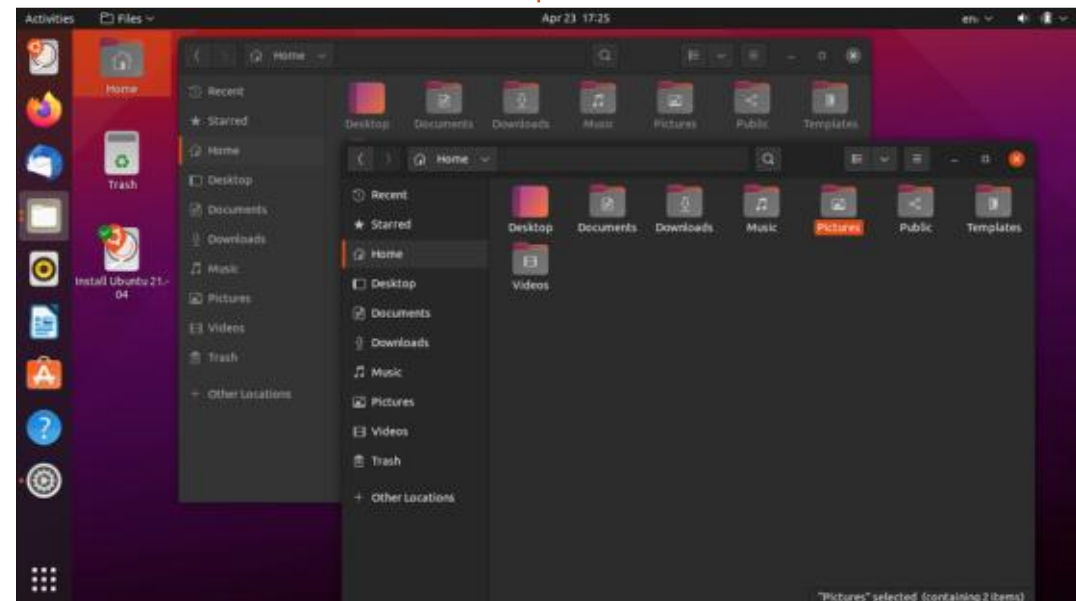
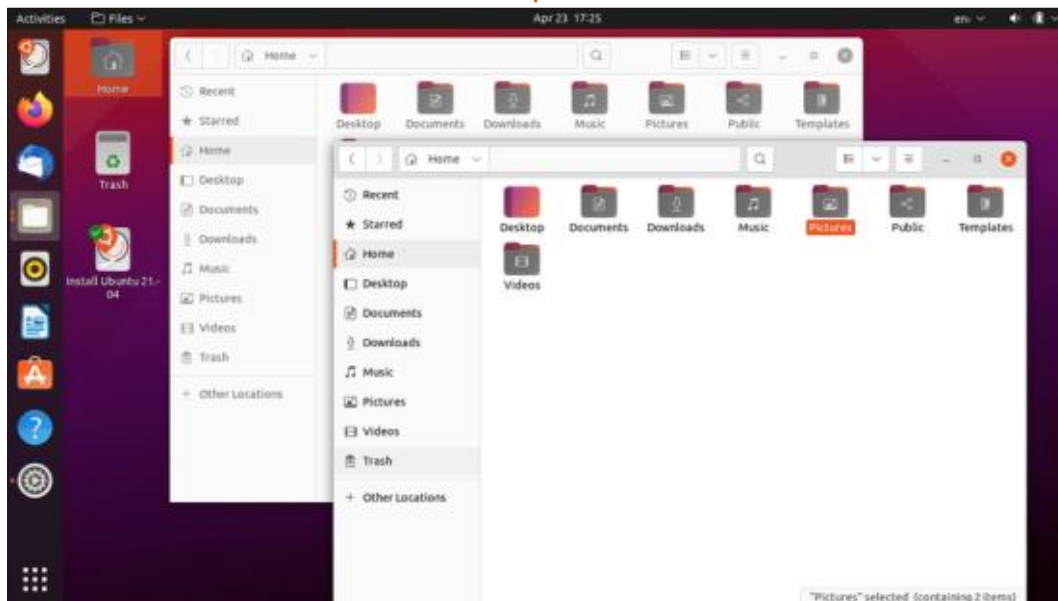
Ubuntu 21.04 includes one new default application, LibreOffice Math, the math formula writer that was omitted in Ubuntu 20.10. I am not sure many desktop users will notice the addition, however, as this is probably the least used LibreOffice component.

One thing that is not new is the current Gnome version, Gnome 40. Yes, that is a whole new version numbering scheme for Gnome, for some reason. All you need to know is that Gnome 40 is the version that follows 3.38. Due to a multitude of concerns that the Ubuntu developers have with Gnome 40,

they have stuck with Gnome 3.38, at least for now. Only a few individual applications have been upgraded to their Gnome 40 versions, like the Document Viewer (Evince) and Gnome Disks.

## SETTINGS

Other than the meager choice of wallpaper, user setting choices on Ubuntu 21.04 are as limited as in other recent Ubuntu releases. Ubuntu really feels like it is aimed at “enterprise” environments more than home users, and I was not surprised to see it in use in a local medical office a few years back. This sort of office priority doesn’t seem to require a lot of user



customization and so, for instance, there are only three window themes: light, standard, and dark. Dark is really dark, too, especially when used with the really dark default wallpaper. Some of the general menus now use default dark backgrounds as well. I am sure fans of dark themes will approve. The light theme is the only one that gives any differentiation between active and inactive windows, though.

The application launcher bar allows some degree of customization. By default it is on the left, but it can be set to the bottom or right of the screen, but not to the top – where it would conflict with the menus displayed

there. The launcher icons can be adjusted in size, larger or smaller, as well, which is useful for some hardware, like touchscreens.

Overall people coming from distributions like Kubuntu, which has thousands of settings, will not be happy with Ubuntu these days with its very limited user choices. Users used to Macs or Windows will probably find it fine, though.

One thing that is worth mentioning is the Ubuntu settings menu, which is excellent. It gathers all the user settings into one place, in a simple and logical format that allows paging through it and easily customizing your installation. It remains probably the best settings



menu in the Linux world.

## APPLICATIONS

Some of the applications included with Ubuntu 21.04 are:

- Cheese 3.38.0 webcam application\*
- CUPS 2.3.3 printing system\*
- Document Viewer (Evince) 40.1 PDF viewer
- Document Scanner (Simple Scan) 3.38.1 optical scanner
- Files (Nautilus) 3.38.2 file manager
- Firefox 87.0 web browser
- Gnome Calendar 3.38.2 desktop calendar
- Gnome Disks 40.0 disk manager
- Gnome Terminal 3.38.1 terminal emulator
- Gparted 1.1.0 partition editor
- Image Viewer (Eye of Gnome) 40.0 image viewer
- LibreOffice 7.1.2 office suite
- PulseAudio 14.2 audio controller
- Remmina 1.4.11 remote desktop client
- Rhythmbox 3.4.4 music player\*
- Shotwell 0.30.11 photo manager
- Startup Disk Creator 0.3.9 (usb-creator-gtk) USB ISO writer
- Text Editor (gedit) 3.38.1 text editor

- Thunderbird 78.8.1 email client
- Transmission 3.00 bittorrent client\*
- Ubuntu Software (Gnome Software) 3.38.1 package management system
- Videos (Totem) 3.38.0 movie player\*

\* indicates same application version as used in Ubuntu 20.10

As in all recent versions of Ubuntu, there is a webcam application, Cheese, but no CD/DVD burning application. This makes sense, as modern laptops and desktops come with cameras, but not optical drives and haven't done so for many years now.

The LibreOffice 7.1.2 office suite is now complete, except for LibreOffice Base, the database application, which can always be added if needed.

The default Text Editor (gedit) 3.38.1 now has two additional choices of syntax highlighting schemes added, bringing the total to nine, including three dark themes.

As I have noted before, Files (Nautilus), the Gnome file manager,

## REVIEW

remains the weakest link in the desktop, missing obvious functionality, like an “up one level” button, ever since it was subject to an overzealous Gnome simplification drive a few years back. The good news is that it is easily replaced with a better file manager, like Nemo, for instance.

Also, as in recent Ubuntu releases, the Ubuntu Software store (Gnome Software) is really just a Snaps-only store. If you like Snap applications, this will make you happy. If you don't like Snaps then it won't, although there are ways to disable it and return to properly desktop-integrated .deb packages instead.

## CONCLUSIONS

Since this is the 34th release, you really expect that the developers would have Ubuntu right by now and they do. In running Ubuntu 21.04, it feels very professional, smooth and polished, with no rough edges found anywhere.

So far in this development cycle, we have seen very few substantive changes. Perhaps the most

important is the use of Wayland by default. Even though that is a developer accomplishment, it is pretty much “user-transparent”. So far, the next LTS release, 22.04, is shaping up to be very similar to the last LTS release, 20.04, and that is actually a good thing. In a mature distribution that already works well, like Ubuntu, wholesale changes are not needed and would cause a lot of user unhappiness. Ubuntu users today largely like how Ubuntu looks and works, and don't think much in the way of

changes are needed. People who don't like Ubuntu are probably already using something else.

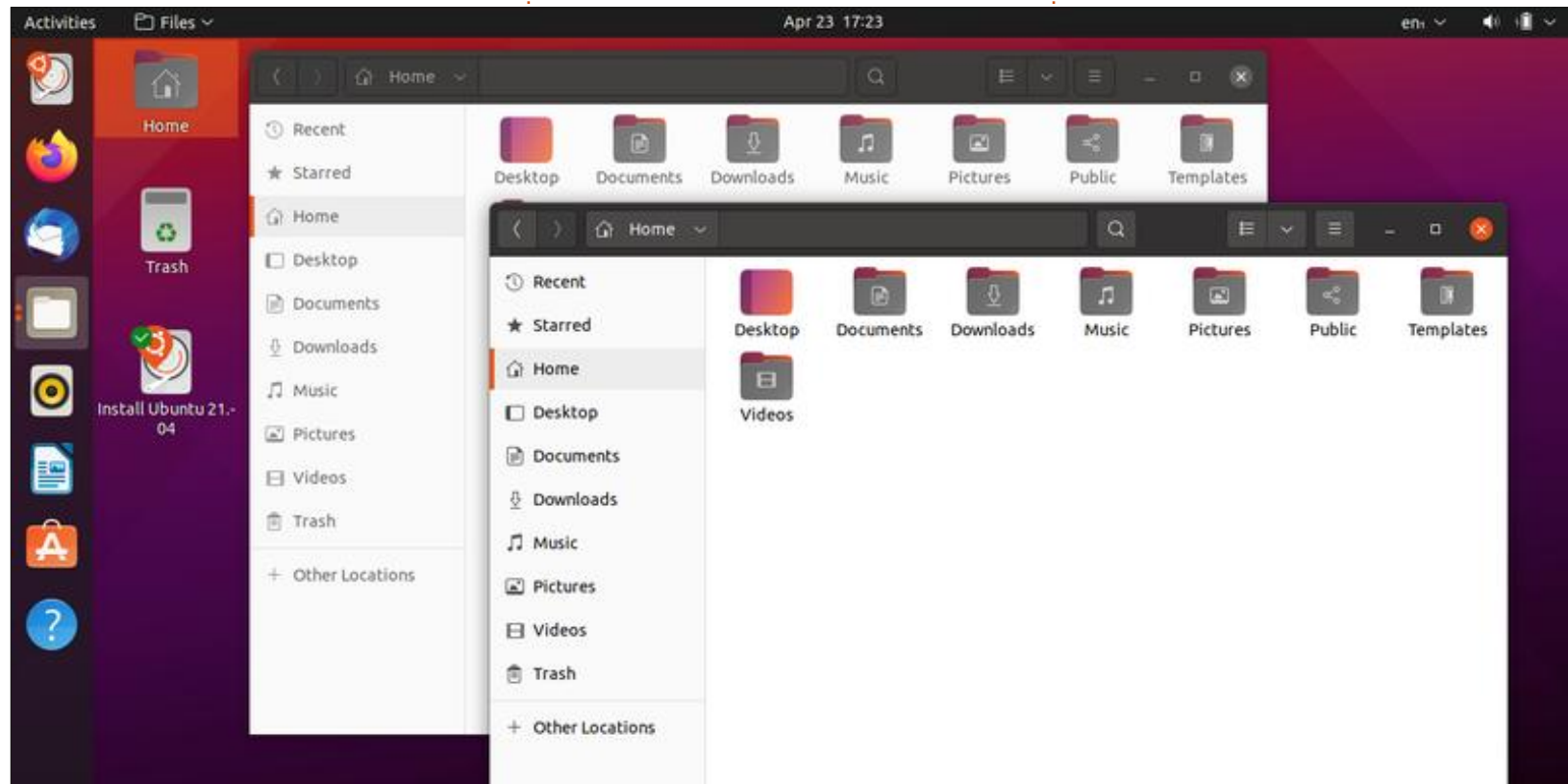
With so little new for desktop users in this release, I suspect most people will keep running 20.04 LTS until 22.04 LTS comes out in April, 2022. With only nine months of support, Ubuntu 21.04 does make much of a case for LTS users to upgrade.

When the next release, Ubuntu 21.10, comes out in October 2021,

I'll have a look at that final release before the LTS, and see what has changed. My guess today it will not be much, just small refinements.



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



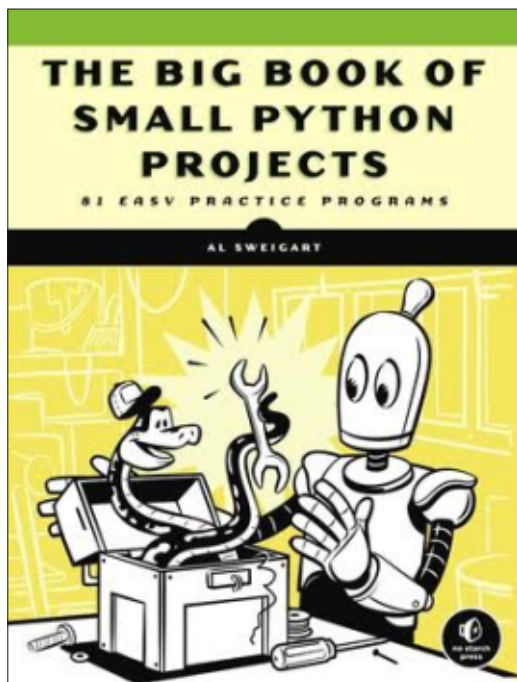




# BOOK REVIEW

Written by Greg Walters

## Big Book Of Small Python Projects



### The Big Book Of Small Python Projects

81 Easy Practice Programs  
by Al Sweigart

Publisher: [No Starch Press](https://nostarch.com/)  
Release date: June 2021  
400 Pages

If you read books of any kind on a regular basis, I'm certain you have a favorite author. For me, it depends on the genre; my number

1 favorite author would be Isaac Asimov. In the realm of Thrillers and Adventure novels, it would have to be Clive Cussler (although recently, this is being challenged by a number of "modern" authors). When it comes to computer programming, especially Python programming, the crown must go to Al Sweigart. I'm pretty sure that I have every one of his books, in one form or another.

His newest book is due out in June of 2021 and is called 'The Big Book Of Small Python Projects'; it doesn't disappoint. In this book, he has created 81 projects – all in 256 lines of code or less (including comment lines). As usual, his code is clean and well commented. The text for each project is clear, informative and uncluttered. Each project or chapter includes a "The Program in Action", a "How it Works", and an "Exploring the Program" section. The "Program in Action" section describes what the program does and has an example of the output. The "How it Works" section gives a gross overview of the code, and the code itself. The

|   |     |
|---|-----|
| Project 1. Bagels . . . . .                                   | 1   |
| Project 2. Birthday Paradox . . . . .                         | 6   |
| Project 3. Bitmap Message . . . . .                           | 11  |
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| Project 5. Bouncing DVD Logo. . . . .                         | 23  |
| Project 6. Caesar Cipher. . . . .                             | 29  |
| Project 7. Caesar Hacker. . . . .                             | 33  |
| ...   |     |
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“Exploring the Program” section challenges the reader with questions like “What happens if you delete or comment out `rolls.append(rollResult)` on line 69?” or “What happens if, instead of a dice roll, you enter nothing?”

As I said, this book doesn’t disappoint. This book is excellent for beginners to Python programming and a great reference book for programmers who are well versed in programming. I’m happy to give this book 5 out of 5 stars!

With 81 chapters/projects, the table of contents would take too much space to put here. However, I’ve pulled a number of chapter titles that will give you a really good idea of what the book includes. You can find a complete list of chapters at [https://nostarch.com/download/samples/BigBook\\_TOC.pdf](https://nostarch.com/download/samples/BigBook_TOC.pdf)





# LETTERS

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

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

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

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





# Q&A

Compiled by EriktheUnready

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

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

**NOTE:** Guys, with the latest Google hack, my Gmail accounts are all in limbo, if you sent me any messages there, I will get to those only when it unfreezes again.

Many moons ago, I was an FSE who had to service clients in rural areas. The company I worked for was subcontracted to IBM. IBM would get all the contracts and subcontract out everything that wasn't sales. With these shiny machines, IBM sold OS/2. For most

customers, this was a big change from plain DOS input. With OS/2 you actually got to use the computer mouse. This object with a weighted ball, and buttons confused a lot of old people. It was easy to tab to where you needed to enter the next bit of information, and the mouse operation slowed down some people's business operations by as much as 80%. Understandably, there were a lot of angry managers and supervisors. We would be called out a lot for dirty mouse balls, etc. However, one day I had to drive four hours to a client, who just could not get the hang of the new application. I stood behind the old fellow and walked him through the use of the application – to get them to speed up their work flow. The very last page, for some or other reason, had the finish button at the top-right. I watched him search for a minute for the OK button. I said helpfully, "top-right, finish". He was so confused, he asked me, my right or your right? As I was standing right behind him, my right was his right. I answered, "it's the same right". He looked at

me funny and I assume the penny dropped. Then, to cover up, he said, "well dammit, how do I know that? You could be left-handed..." Laughing all the way home made the trip a lot shorter!

**Q** : I just set up Ubuntu server with docker on an old PC. The networking part has me perplexed. I can't ping my server from my windows 10 laptop. The replies are "Destination host unreachable." I have even disabled the firewall with `sudo ufw disable`. How can I troubleshoot this?

**A** : My first thought would be to ping back. On your server, see if you can ping the windows machine. If you can't, see if both sides can ping the gateway or router. Then look carefully at your subnetting – on /24, for example, 192.168.1.1 and 192.168.2.1 are not quite what you want.

**Q** : Got permission denied while trying to connect to the Docker daemon socket at `unix:///var/run/`

`docker.sock`: Post `http://%2Fvar%2Frun%2Fdocker.sock/v1.24/build?buildargs=%7B%7D&cachefrom=%5B%5D&cgroupparent=&cpuperiod=0&cpuquota=0&cpusetcpus=&cpu setmems=&cpushares=0&dockerfile=Dockerfile&labels=%7B%7D&memory=0&memswap=0&networkmode=default&rm=1&shmsize=0&t=getting-started&target=&ulimits=null&version=1: dial unix /var/run/docker.sock: connect: permission denied`

**A** : Use `sudo`, or add your user to the docker group:

```
sudo usermod -aG docker $USER
```

**Q** : When I run my script, I get ---- 'python': No such file or directory ---- I am very new to all this and people are giving me all kinds of advice that does not seem to help. I am learning from books at the library, so I can't really ask them questions.



**A** : I suspect your book is old. Python moved on, so “python” usually points to Python 2, and we are now at Python 3. Check your shebang entry, so that it points to Python 3. Type ‘which python3’ (no spaces or you will get the python path), and copy the result to your script.

**Q** : NuGet and Chocolatey got me to move to Ubuntu. Now I am sitting here in front of my freshly installed Ubuntu 20.04 and wanting to just install my apps again with any one of these two. But I can't. But I have to. See my dilemma?

**A** : No, not really. Nuget and Chocolatey are windows package managers to install windows applications. In Linux, you just open a terminal and type: `sudo apt install <package name>` – otherwise open your software centre – if you have a desktop version of Ubuntu installed – and browse. There are other stores in Ubuntu too.

**Q** : My server is Ubuntu 20.04 with just the basics. I logged in with Putty and I see this.

root@agitated\_darwin:~# I tried duckduckgo on Darwin, but that is an OSX codename. It is supposed to be focal fossa. What does this actually mean? <image removed>

**A** : Spinning up an Ubuntu server, it is given a random name. Unless you give it one when spinning it up. Darwin in this case is a Scientist name.

**Q** : This is what I want to do; found it on StackOverflow with no answers: How can I set a default code in Codeblocks which appears every time when I open a new empty file. I put my template code (sample code) in Settings-> Editor-> Default code. But it is not working when I create a new Empty file. OS: ubuntu 20.04, code blocks version: 20.03.

**A** : I suggest asking on their forum, but I would think an empty file is an empty file (if it were not empty...). When you edit “default code”, it is for a source file or header, not an empty file. If I remember correctly, the changes take place only when you exit and save.

**Q** : So following this tutorial on how to install java, I did the following:  
`sudo apt install default-jre,`  
 but “java -version” shows that java was not found.  
 So what now?

**A** : Have you tried installing openjdk? The JDK usually includes the JRE and all the other tools you need to create Java programs.

**Q** : HermanH, [24.11.20 16:34] Can you do a cURL tutorial? I can't read man pages. They are like rubbing yourself up a pineapple.

**A** : Can do. Keep your eyes on future issues.

**Q** : I am trying to do some tutorials, and I just upgraded from Ubuntu 18 to 20. Ubuntu 18 was my first linux install. Somehow I can't run YUM commands. I can't even install it.

**A** : YUM is an rpm-based package manager (SUSE, RH, ORACLE). APT is the debian-based distro package manager. It's like trying to fit a Toyota gearbox on a BMW.

**Q** : I miss glasswire on Windows. I went to alternative.to to get an alternative, but the options are confusing. Netdata doubly so. Can you help me? <https://alternativeto.net/software/glasswire/?platform=linux>

**A** : I suggest Portmaster and OpenSnitch, the rest are white noise. (The most popular is not always the best alternative).

**Q** : I need to encrypt my WD pocket drive so that I can take my work to the office. The thing is, the machine at the office also needs to unlock this drive, yet the users and systems are different. Unencrypted drives are not allowed. What is my best bet?

**A** : I am inferring here, as the question needs more meat. We have done an article on Veracrypt. Once encrypted, the drive will unencrypt on Linux, Mac or Windows, with the password and/or PIN. Choose a file system that works at home as well as at work.

## Q&A

**Q** : I just upgraded from an i3 dual-core to a beast machine with 16 cores. I am disappointed that it is only about twice as fast. Why can't Ubuntu be faster?

**A** : The thing with parallel processing is, even if you have 128 cores, usually the next thread is waiting for the previous one to finish. When you bake bread, it does not help to take out the jam before the dough is mixed? Parallel is not really parallel as any program is linear. It has nothing to do with Ubuntu.

**Q** : My Ubuntu is 14.04. Sometimes I can run the latest and greatest software and applications, and sometimes I can't. Why is this? Don't tell me to upgrade, I am happy the way it is.

**A** : Simple, dependencies. This is why Snaps, AppImages and so forth exist. Different versions of software are built with different toolchains, so even if you try to compile it yourself, it will not allow it, as your version of Ubuntu may not support the newer technologies. I am not telling you to upgrade, but if you want the latest and greatest, an old OS is

not the way to go.

**Q** : Why does the mv command just overwrite an existing file without a peep?

**A** : If you want it to "peep", you need to use mv -i ... or alias it to something like mov.

**Q** : I'm trying to install ros melodic on ubuntu 20.04, but I get the following message: Depends: ros-melodic-desktop but it is not going to be installed ...blah blah blah. All I am met with is dependency issues when trying to install the missing files manually.

**A** : According to their website, it is only for Ubuntu 16.04 and 18.04.

**Q** : How can I know what is inside a specific Ubuntu install by default? Let's say it is running off a live CD and has not been tampered with. There were no apps installed after it booted. How can I know what is inside without running a VM and mounting the same CD?

**A** : Each release has a manifest file. You can download those and look inside. Go to <http://releases.ubuntu.com/>, pick your release, look inside the folder for the manifest.

**Q** : How can I see/verify if my VPN is working from the command-line?

**A** : I don't use any, but try:

`curl ipinfo.io`

and see if it correctly identifies the location. There may be an easier or better way, but that is what I like about Linux, many ways to accomplish a task. If there are any readers with better suggestions, mail us: [misc@fullcirclemagazine.org](mailto:misc@fullcirclemagazine.org)

**Q** : How to solve? I am using Ubuntu to RDP to our company server, using Remmina. All is set up correctly – like before the new Ubuntu. When I am connecting, immediately blue screen me signing out. "Signing out" and log me off. I am working from home now, so I need it to work. I asked

the support department and they say they do not support Linux.

**A** : That is not an Ubuntu/Linux issue, tell the lazy support staff to lift their butts and disconnect your open sessions on the Windows server.

**Q** : How can I make Ubuntu more hard-core at start up?

**A** : I am not sure I understand the question, but... You can use any boot image you want with Plymouth to make it appear whatever feeling it is you want. You can also just remove the "quiet splash" from kernel command-line (grub), then the boot messages will scroll by (not sure how many milliseconds it will be these days as PC's have become so fast).



**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.piritastudio.com/>

Price: 19 USD GOG / STEAM

Blurb: *"MUTROPOLIS is a lovely sci-fi adventure set on the abandoned Planet Earth. Play as Henry Dijon (hero, nerd, detective) in search of a legendary lost city. Uncover weird ancient artifacts.(sic) And PLEASE don't get obliterated by an ageless evil. You've been warned."*

If you are an Indie-game fan, this is for you. (The double entendre was intentional, as the first lot of Indiana Jones games were point and click too).

Does this game have it all, even Grumpy Cat? Let's find out.

The game is broken into acts, and the first act has you searching for your trowel to open a door. But who are you? You are Henry Dijon, an archaeologist from the future. Here to do what? Find something that is pre-cataclysm. So what about the puzzles? Well, the goals seem to be well defined. The

execution not so much. I admit, I stumbled around until I accidentally clicked on some footprints in the dirt that were barely visible. When previews and press releases mention Monkey Island in the same breath as this game, I want you to ignore it. Your expectations will be too high and you will not like the game. I need you to rather think Deponia.

I installed the GOG version of the game and it installed and ran without problems. Tested on my potato laptop, it made the fan spin, but barely.

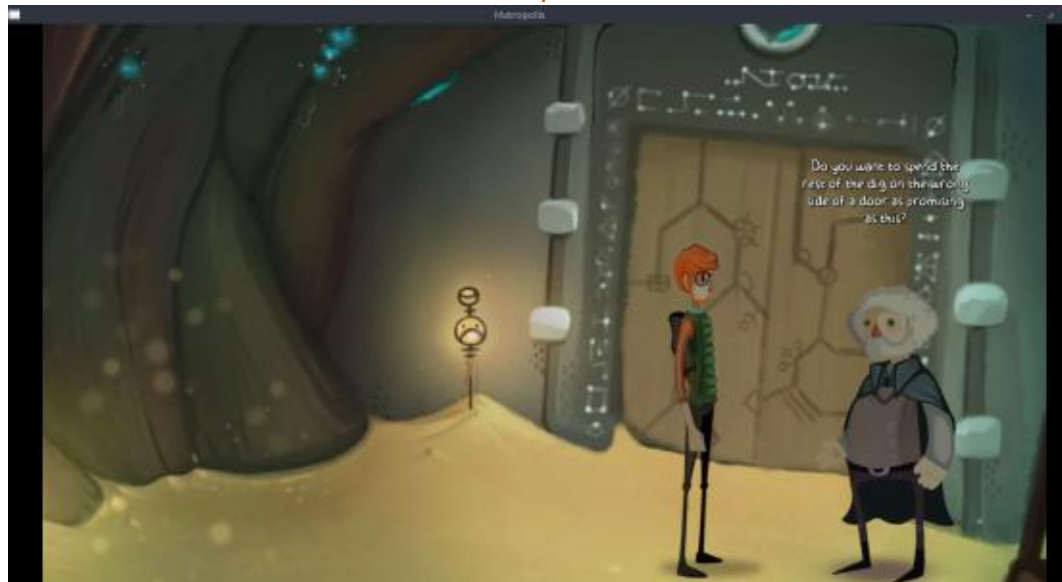
The story is not earth shattering, but it is like a cosy mystery book rather. Familiar and safe. There are times when it will put a smile on your dial, but you will not laugh out loud.

The gameplay is familiar too, you are set a problem and with one tool to start with to work your way to the next sub-problem, hidden somewhere in the image in front of you. Thankfully none of the riddles or puzzles reach logic so far removed from reality that it only makes sense in the fifth dimension.

They all make sense, and are not so well hidden that only a one-pixel perfect click will unlock either.

There is a lot said about the graphics in the game, but with long red diamonds for noses, the characters look drunk to me. The way they walk, they are definitely drunk. (Since they are from Mars, the long limbs are a given.) Yet somehow the game also reminds me of Broken Age. I also fail to find the Monkey Island humour; again, it would be just below Deponia.

Since the artwork is hand drawn by an Indie developer, it gets a pass, but it does not add anything to the game. The audio is a bit of a letdown. The voice acting feels a bit sub-par. Instead of Henry being a funny jovial character looking for his trowel, he comes across as a bit of a nag. I am going to assume the developers did it themselves during lockdown, so this too gets a pass. The music could have been left out too as it brings nothing to the game. (I don't know if it is just me, but the game feels bland). I



was really looking forward to this.

The game isn't a long one, the time you take on the puzzles is what will determine the play through for you. As I mentioned before, they are logical and you should get them, even if you just randomly try to combine components. I randomly tried a mushroom with the hole, and it turned out it was a glowing mushroom that lit the hole. Fair enough.

The game also needs a bit more character development. Too much stereotyping. The nerdy archaeologist, the dof blonde, the Goth bettie with an attitude problem and the scatterbrained

professor. You need charming characters, or taking them to the extreme like Hoagie and Laverne in Day of the Tentacle. The world did also not feel like a world abandoned for three millennia either. The few glimpses we are given just sort of hints at it. I don't know about you, but I need immersion. I want to believe! I mean, the professor is kidnapped, the graffiti is kidnapped! Where is the danger, the drama or the mystery?

At the end of the day, this is a middle-of-the-road adventure game. I could say bordering on boring. I mean, I never even saw Grumpy cat again. That alone gave me hope that the game would be a

fun one, albeit with dry humour.

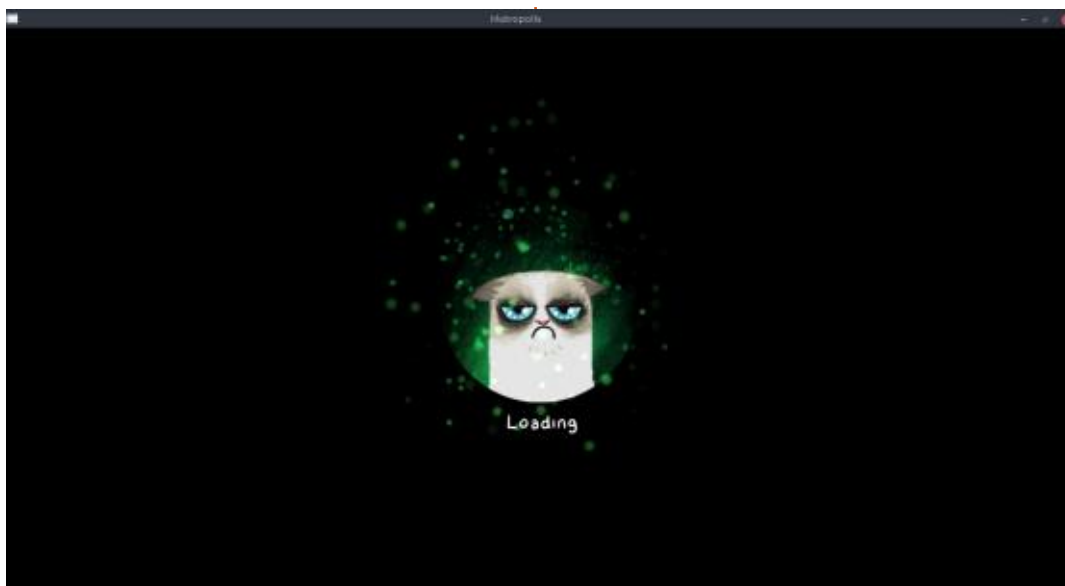
There is an overhead map of sorts, but it is more of a cut scene.

As an Indie game, it gets a pass on most of the important stuff we would normally judge a game by, but, like Luke Skywalker as a Stormtrooper, I thought it would have been bigger.

If you are bored and have nothing better to do, give this a go. Just wait for it to go on sale though. If you are looking for a better experience and you have not played Deponia or Broken Age, I suggest you get that rather.



**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

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