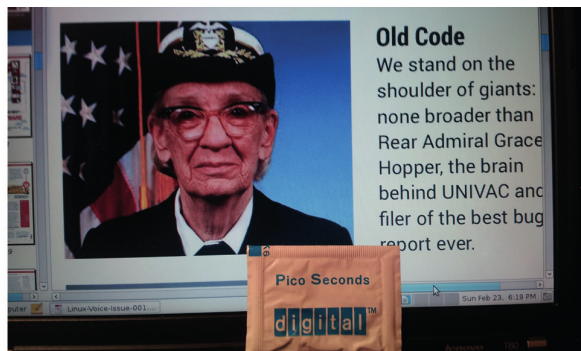# LINUX VOICE YOUR LETTERS

Got something to say? An idea for a new magazine feature?
Or a great discovery? Email us: letters@linuxvoice.com

LINUX VOICE STAR LETTER

GRACE HOPPER

Congratulations on publishing the first of many great Linux Voice editions! I was excited to see a picture of Rear Admiral Grace Hopper for an upcoming article for next month. In my first job out of college (1981), I learned the basic "rules" of programming from a phenomenal designer/programmer, Gordon Vikse, who continues to teach me things to this day. He introduced me to the work of some of the greats in computing, such as Niklaus Wirth, C.A.R. Hoare, Donald Knuth and Grace Hopper. Years later, I worked as a civilian contractor at the Pentagon. One day while walking one of the literally 17 miles of hallways, I discovered a display on Grace Hopper, which greatly pleased me as it was a richly deserved honor. Shortly thereafter, I was even more pleased to be able to attend one of her talks (around 1990). At the time, she had been forced into retirement by the U.S. Navy and was working as a consultant for Digital Equipment Corporation (DEC). During the talk, she told the story of her nanosecond wires, then handed out picoseconds to the audience to demonstrate how much faster computers had become. The picoseconds were a packet of ground black pepper with the DEC logo and the words "Pico Seconds" printed on it. I only wish I could have had her sign mine. Her lesson that it is easier to ask forgiveness than permission is, in my opinion, embodied in the spirit of FOSS computing. I'm glad to see that Linux Voice is reminding us of the greatness that has existed, and continues to exist, in computing.
Paul Olson, Oklahoma, USA

Andrew says: Paul, you've made my day. The Grace Hopper tutorial that we're running on page 80 isn't particularly Linuxy, but without Rear Admiral Hopper's work we might not have Linux at all. The debt that we owe the likes of Grace Hopper, Alan Turing (he's coming next issue), Donald Knuth *et al* is enormous.

It's only fair that we acknowledge, in Paul's words, "the greatness that has existed, and continues to exist" in computer science.

PAYPONG

I've been an enthusiastic reader of your work for many years and have had a subscription to your previous magazine, for several years, bought for me by a family member; as a pensioner I need all the help I can get!

In trying to decide what to do about migrating to your new magazine, I discovered that it is impossible to do so without opening a PayPal account. I know that this is not a welcome situation, as far as my 'benefactor' is concerned. Is there any way around this obstacle? Whatever the outcome, good luck with your new venture.
Norman Kearey

Andrew says: We've spoken to our bank about a better online payment system, and they aren't interested in helping us until we have at least a year's accounts under our belt, so, distasteful as it is, we're stuck with PayPal and its exorbitant fees for now. We're not happy about it either.

As much as we dislike it, PayPal is the only way for us to accept payments for magazine subscriptions at the moment.

PUBLISHING

Thoroughly enjoying your first issue. What caught my eye at first glance was the news that a new release of Scribus is on the way. Great! I have no doubt that this program will be well able to compete with the extremely expensive equivalents in the Windows and the Mac platforms.

But there's a price to pay for this complexity. In earlier times Scribus was easy to use and gave me all the flexibility I needed. Now, unfortunately, I can't perform even the simplest DTP tasks. Everything seems to work differently and nothing can be done intuitively. There's a complete guide to Scribus in book form but it runs to 438 pages!

Which brings me to my main point: there's an excellent opportunity here for developers to construct a lower-level DTP program which is usable by ordinary human beings rather than high-powered professionals. Years ago there was 'Publisher', an elementary Windows DTP program which appealed to a different user than 'PageMaker'. So I would urge open source entrepreneurs to get their act together and fill the gap.

Or maybe I'm missing a simpler alternative in Linux ? Of course any word processor can design basic documents and Inkscape
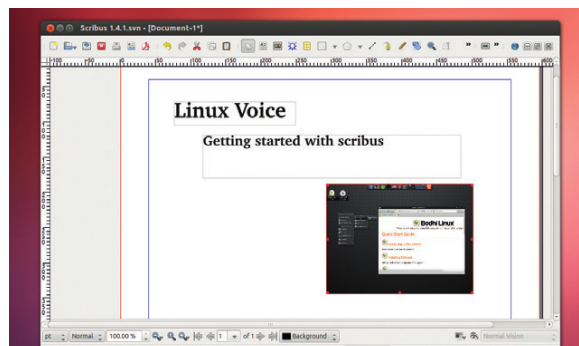
can produce good materials for publication without too much effort. But many people need something more versatile.
Maurice George, Ormskirk, Lancashire

Mike says: I quite agree. The power to change, for example, the spacing between individual letters is awesome when you're doing high-end design work, but it's Scribus and its like are massive overkill for most people. Maybe all it would take is a version of Scribus with features taken out?

Scribus (top) can be overkill for most tasks, so we'd stick with LibreOffice or Inkscape for simple jobs.

THE CODE AHEAD

Big fan of all your work. I've been listening to the TuxRadar... I mean Linux Voice podcast for a while and just got the issue 1 PDF. The content is great.

You might already be working on these but here's the two things I'd love to see:
- Have the table of contents and cover be made of clickable links to those stories. That will avoid "this story about bitcoin looks interesting, now let me scroll through 56 pages to get to it".
- An epub version.

Mark

Graham says: Thanks for the feedback Mark, we appreciate it. We know that we want to improve the digital offering from PDF-only; at the moment we're looking into a HTML 5 container app among other solutions, and epub might be one of those that we settle on. There's a rift between XML and HTML advocates at Linux Voice Mansions, and this many influence the formats that we choose. However, it's one of our principles that we should offer the content in whatever medium the readers want to buy, just as we offer the podcast in MP3, Ogg and Opus files.

Clickable links in the contents page though is something that we should have got right from day one, and if I can remember how to do it we'll have it in issue 2.
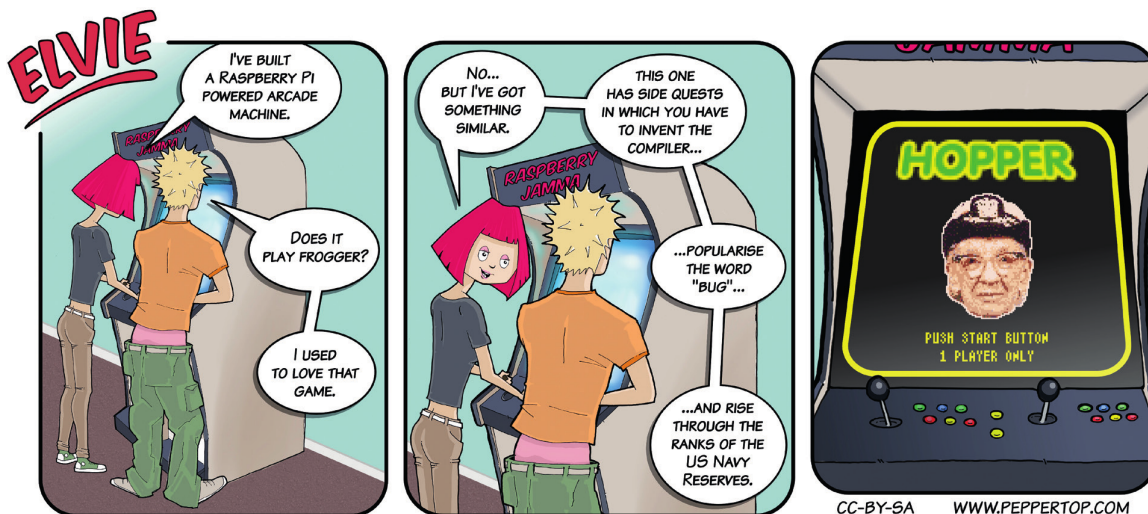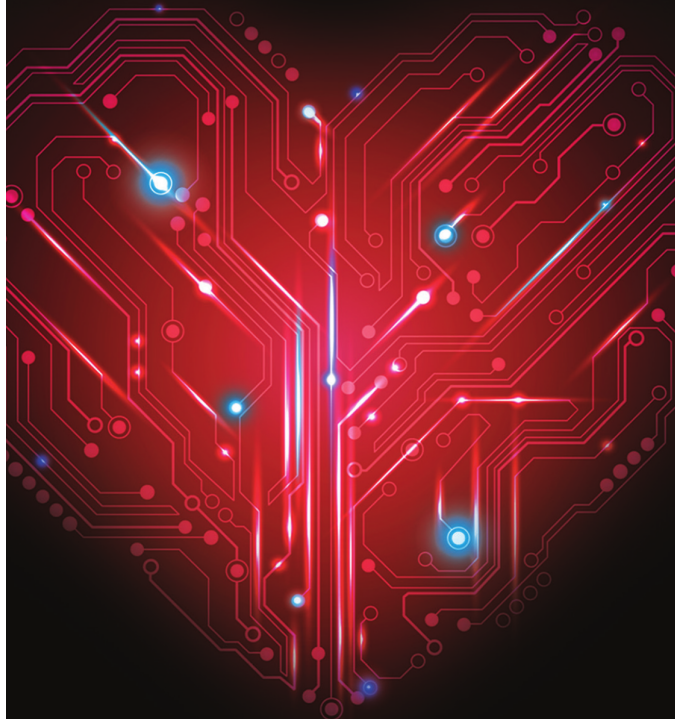
HEALTHY COMPETITION

Congratulations on an amazing first issue!
I could not believe when going through LV01, how much it is everything I have ever wanted from a Linux magazine:

- Amazing features.
- A section dedicated to gaming.
- Arch.
- A challenge after a tutorial.
- My name in it :-).
- Many more!

I have a print subscription and will be with you for the many, many years this magazine will no doubt be around for.
Craig Waites
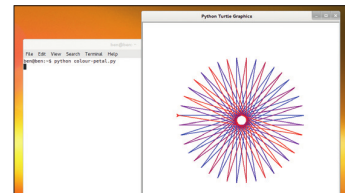
In a happy coincidence there's another competition for you on p96.

Ben says: It's often easier to learn when you have a tangible incentive to do so. That's why we're offering exclusing Linux Voice T-shirts to the winners of our coding competitions – though of course, if you're learning something, you're already winning.

REDRUM REDRUM REDRUM REDRUM

I understand that you must be really busy these days, but you know what they say: "All work and no play makes Jack a dull boy..."

So I have made a Bash game called "Back in a minute" that may offer some escape. It's a simple text-based adventure game featuring four playable races, six enemies, turn-based fighting, eight hidden items and six different scenarios in the 270 sections of the world map. You can also create your own custom ASCII map for use in the game!

I'm currently doing an MA in political philosophy, so it is nice to "switch off" every once in a while and play around in Bash a little.

You can find the "Back in a minute" website at **http://sigg3.net/biamin** and browse the code directly at **https://gitorious.org/back-in-a-minute**

Thanks for providing me with GNU/Linux knowledge and tips for these last 7-8 years, and keep up the good work! Even though my studies and social life permit little time for LUGs and other F/OSS related events, listening to your podcasts makes up for it and also keeps me up to date.
Sigge, Norway

Graham says: Thanks Sigge, we'll show this to Ben as soon as we release him from the coding tower, where he's been devising this month's competition. And thanks the some light relief; LV Mansions is starting to look like the Overlook Hotel.

On second thoughts, let's not play Back In A Minute. 'Tis a silly game.
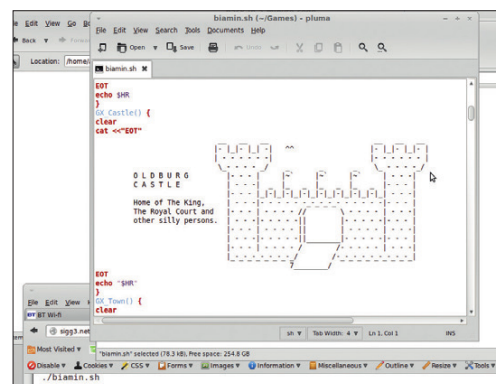
PIE TIME

First off, congrats on a great premier issue! Ah, most of the old band is back together again and sounding fine! Now if you just had a physicist on board, and perhaps a female computer language researcher, and… "Linux Voice" is perhaps the best start-up investment I have ever made.

With all the interest in the Raspberry Pi, here is a suggestion that I have been struggling with: setting up a true real-time version of Linux on the Pi. I have looked at Open Embedded, Preempt-RT, Xenomai and more, and they all seem promising but I haven't found a good complete setup yet. I am trying to sample the Pi's I/O pins deterministically at about 10~20 kHz to debounce and filter a 1kHz input, so evenly spaced sampling times without latency is important.

Congratulations again from the rural parts of New York State (yes, there is more to NY than NYC, like 500 km of farmland all the way to Canada) and I look forward to reading you for years to come!
Jim Cranston, New York, USA

Graham says: I love the idea of looking into running real-time stuff on the Raspberry Pi. From an audio perspective, it's quite easy to build a RT kernel for Jack, but I'll have to look into whether it works just as well with the Pi's I/O. Stay tuned!
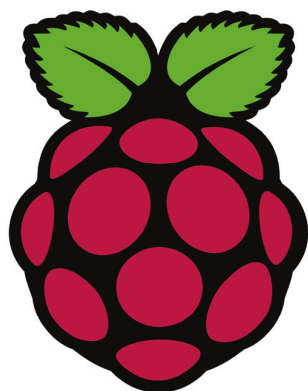
The Raspberry Pi is like pulling an idea out of your brain and putting it onto a USB-powered PCB.

RANDOM ACTS

Given the revelations that the NSA tries to subvert the strength of encryption by weakening algorithms and by subtly altering the doping of the underlying silicon, we should be suspicious of the integrity of the random number generators. If the NSA is doing such things then it is likely that the Chinese are doing the same – the majority of electronics are now made in China or Taiwan.

How do we know that our sources of random numbers are truly random? Can Linux Voice address this question? Is there a statistical test that can be applied to **/dev/random** and **/dev/urandom** to verify that they are continuing to provide statistically significant sequences of random numbers?
Andrew Shead.

Ben says: You're right to be concerned about random-number generation. It's a mathematical weak point in most security systems.

One test is to gather output from the random generator in Linux (**/dev/random**) to a file, then try to zip it. In theory, it's impossible for any lossless compression to shrink random data, so if the zipped file is smaller than the uncompressed file, you have a non-random random number generator. However, it's very hard to perform a comprehensive statistical check when you don't know what you're checking for. Imagine, for example, that every CPU is pre-programmed with a list of truly random numbers that it
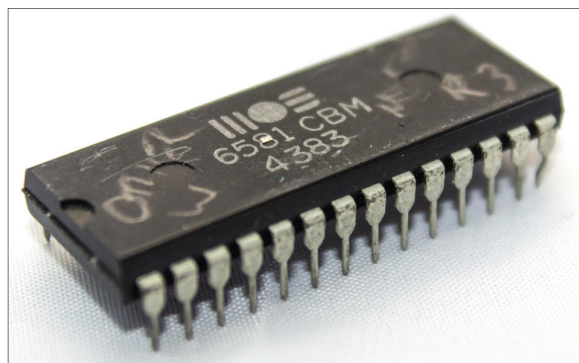
outputs when called. This list could also be sent to the NSA. However, any statistical analysis would show them to be random. Alternatively, the randomness generator could just cycle through non-random numbers under very specific circumstances.

The issue did raise its head last year when an online petition asked Linus to remove the Intel hardware random number generator from **/dev/random**. Essentially, the issue boils down to the fact that Linux generates a random number itself, then XORs the number with one generated by the hardware random number generator. This method of combination means that the outputted number will be as random as the most random input. A compromised hardware generator wouldn't make the system less secure.

Of course, there's also nothing to stop a malicious CPU from listening for software random number generators, and manipulating the output. Ultimately, there's very little defence against a hardware manufacturer that wants to spy on you, except, perhaps, open hardware design like the work of **opencores.org**.

The SID chip, as used on the Commodore 64, is a part-analogue sound chip and also an excellent source of random numbers (noise), making it highly prized by synth geeks and encryption experts alike.

TASTY PIE

Could we see more Raspberry Pi stuff in the new magazine please – in particular, more projects would be good.
Matt Osman

Mike says: Of course, but we have to be careful not to alienate non-Pi users. Luckily most Pi tutorials apply just as well to generic Linux boxes – such as the arcade machine tutorial on page 74. Have fun!
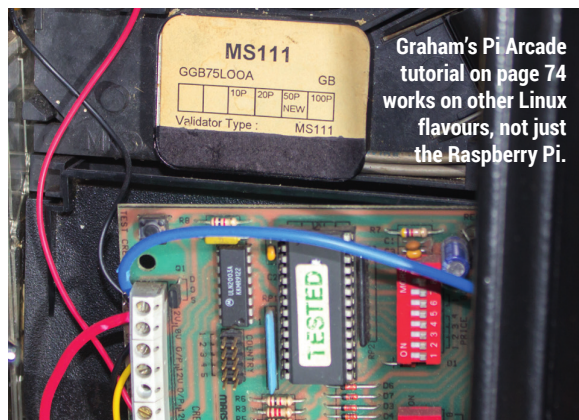
Graham's Pi Arcade tutorial on page 74 works on other Linux flavours, not just the Raspberry Pi.