FREE SOFTWARE
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Contents

The stakes are higher

by John Sullivan
Executive Director

When Richard Stallman launched the free software movement, it was because he couldn't get the necessary source code to a printer program with a problem he wanted to fix. Not

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being able to fix the printer was frustrating, but this practical issue rose to the level of an ethical problem when he realized people had started to make promises to the companies distributing software that they wouldn't share the source code they had with anyone else. Software companies were requiring users to promise not to help each other; to remain dependent only on them. People had to sell out their friends and peers in order to get the software they needed.

Because Stallman didn't have the source code, his Xerox printer didn't work as well as it could have. But now, because we don't have the source code, Amazon can delete copies of our books from the reading devices we hold in our hands, while we hold them in our hands. They can and they do; in fact, they are so confident that people will accept this exercise of power that they remotely deleted

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copies of one of the most powerful books ever written about totalitarian control — *1984*. Beyond deleting individual books, Amazon can — and does — completely block readers' access to their entire libraries, because access to those libraries is controlled by proprietary software and proprietary formats.

Amazon is not the only company with this power — all of the current ebook reading devices, including the Nook and the iPad, have the same problem. The result is that we are not able to pass our books on to our children, or loan them to friends, or donate them to libraries, or sell them when we are done, or re-read them ourselves in the future once the proprietary device-of-the-year decides to stop understanding the format they are in. It means that all of our reading habits can be recorded, consolidated, and exploited.

It's not just books. Because we don't have the source code, we aren't in control of the medical devices some depend on to stay alive. Because we don't have the source code, soon we may not be able to drive freely, because proprietary car software will take the wheel. We may not be able to see freely, because the electronic glasses we wear will filter our vision.

The stakes are now much higher than a printer jam, and they will continue to get higher.

We are fortunate Stallman recognized that not having the source code was more than a mere inconvenience, and fortunate that others have realized this as well. The fact that only the companies have the source code keeps us ignorant of what they may actually be doing — and often are caught doing — and deprives us of a component critical to improving both our own world and the world of those around us.

You wouldn't know it from the advertising, of course. On October 25th, 2012, Windows 8 launched with an estimated \$1.5 billion marketing budget. If you're in the US, you've been seeing the incessant rapid-fire colorful commercials. The same week, Apple launched a heavy round of advertising for a new (smaller) iPad.

These commercials try to convey a sense of freedom and creativity. They focus on all of the new things the software will "let" you do. What the commercials don't tell you is that many of the devices sold with Windows 8 — especially tablets — will only be allowed to run Windows. One of the major innovations in the new operating system is not what it will empower you to do but what it stops you from doing. They don't tell you that if you buy an iPad, you are only allowed to install software pre-approved by Apple, or that Apple can remotely disable this software at any time.

Everywhere around us we hear these voices deceptively pushing proprietary software. Where are the voices for free software?

The FSF has been a voice for free software for over twenty-seven years, and we are building our capacity to crank up the volume. We won't compete by being a corporate marketing department designed to trick people into buying our product. That isn't necessary, because we have the truth on our side. Free software is just better for you. If we had \$1.5 billion with which to make sure everyone heard about free software, this would all be over very quickly.

While we don't have that kind of money (yet!), we do have many thousands of supporters and independent

free software users around the world. You are reading this because you are one of those supporters. The FSF exists largely to amplify your voice, and to make sure you and the rest of the free software movement are represented in every context where software is mentioned, in any language, anywhere.

In order for us to do that, we need you to speak up first. That's why we often ask you to make public commitments — to sign pledges and petitions, and to firmly state your support for free software ideals to any company that restricts users.

It's why we've asked you to state on the record that you won't buy any computer that tries to prevent you from changing the operating system, at `http://fsf.org/sb`. Over 37,000 people have added their name, and more are doing it every day.

It's why we've asked you to pledge to help a friend or family member move to GNU/Linux instead of Windows 8, at `http://fsf.org/windows8.`

No matter how much amplification we do, the essence of this movement is these individual conversations with the people around you, and the way you share your commitment with others. Keeping these conversations and these public commitments going is the only way to keep our books from getting burned, and to make our participation in a technologically advanced society truly free. The stakes are high and getting higher. What you are doing is very important, and we need you to keep it up. Unless you can give us $1.5 billion.

News Alert! LulzBot AO-100 3D printer now FSF-certified to respect your freedom

A bit about free hardware

by Joshua Gay
Licensing and Compliance
Manager

In October we awarded our first Respects Your Freedom (RYF) certification to the LulzBot AO-100 3D Printer sold by Aleph Objects, Inc. The RYF certification mark means that the product meets the FSF's standards in regard to users' freedom, control over the software that runs on the product, and privacy. The free software community and the public have been very supportive of and excited about the RYF certification program, and are eager to see more computer devices ship with RYF certification marks.

A small number of people have asked us if we could add more requirements to the RYF certification process, specifically, whether or not we can certify that the hardware itself — not just the software that ships on the device — can be considered free hardware.

While following-up with free hardware advocates, I found very cool and growing nascent communities. They ranged from individuals building analog devices to those trying to fab their own chips. But, the one thing I found in common with almost all of these communities was their commitment to free software.

So while we don't currently have plans to expand our certification to include more free hardware requirements, I did in the process learn a fair bit about free hardware design. There are many aspects to designing hardware, including mechanical drawings, schematics, PCB layout data, HDL source code, and integrated circuit layout data. And there is also a fair amount of free software for doing electronic design automation and simulation, including Fritzing, KiCad, Qucs, and XCircuit.

Another thing I learned while researching and talking to people in the free hardware community is just how important it is for developers to be creating more free formats and low-level free software. It really is a high priority! And in fact, some projects can be found on the FSF High Priority Projects (HPP) list.

In terms of free formats, we have the replacement for OpenDWG libraries on our HPP list. OpenDWG is a collection of CAD files, a specification for CAD format, and proprietary software tools for creating and manipulating CAD files. If you want to help replace OpenDWG with a free format and free software tools, considered helping LibreDWG.[1]

But, perhaps the biggest bottleneck right now that is preventing more hardware products from being able to have RYF certification is the fact that hardware makers are shipping proprietary software for their Graphics Processing Units (GPUs). In many cases, this is because they are selling functionality — that is they will sell different proprietary software that is that is able to unlock different graphics functionality on the same hardware.

If you want more GPUs that respect your freedom, I urge you to help a GPU reverse engineering project.[2] 🐃

New! FSF Knife and Cybertool `shop.fsf.org`

Support free software this holiday season

by Chrissie Himes
Operations Assistant

Don't forget to visit our shop `shop.fsf.org` as you do your holiday shopping. This year we proudly unveiled a number of new items, such as the GNU Emacs Reference mugs — which is in such high demand that we've had to reorder several times. We also introduced large and small versions of the GNU/FSF logo cybertool/knife. We are working on several new items for the store as well, like an updated Emacs manual and GNU beanies. To get all the latest news and updates from the FSF shop, please join

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[1] `www.gnu.org/software/libredwg`

[2] `www.fsf.org/campaigns/priority-projects/reverse-engineering`

the GNU Press mailing list: `ur1.ca/9hkqk`. If you have any suggestions for GNU Press, don't hesitate to add them to our ideas page at `libreplanet.org/wiki/Group:FSF/Ideas`.

Another great way to show your support to the FSF is to volunteer with us. We are always looking for volunteers of all skill levels to help us out with small tasks and larger projects. Projects include updating the Free Software Directory `directory.fsf.org`, stuffing envelopes, writing a blog post, and helping to answer users' questions on licensing and software. To get started as a volunteer, check out the volunteer page at `www.fsf.org/volunteer`, send a message to `chrissie@fsf.org`, or if you live in the Boston area, stop by the office.

The FSF Associate Membership Card `member.fsf.org`

Richard Stallman on the balcony where San Martin proclaimed Peru's independence

Where in the world is Richard Stallman?

by Jeanne Rasata
Assistant to the President

Over the past six months, Richard Stallman has continued advocating for the protection of computer-user rights to government and school authorities, developers, students, activists, and members of the general public, delivering 56 speeches in 41 cities across 12 countries.

His visit to Peru this past August took him from Chiclayo, in the north, to Tacna, in the south, through Trujillo, Ayacucho, Huacho, Callao, and Lima.

In Chiclayo, his speech calling for a free digital society was the main attraction at the eighth national conference of students of system and computer engineering (CONEISC), Peru's most important technological event, where he appealed to students and engineers to devote their energies to creating a free and just — rather than an amoral all-inclusive — digital world.

He was awarded an honorary professorship in Trujillo, where he called

for schools to fulfill their roles of forming and educating good members of society by using only free software, and honorary doctorates by universities in Tacna and Huacho, where he spoke about the goals and philosophy of the free software movement, and underscored the need to focus more on computer users' freedom to cooperate and control their own computing.

At the national office for electronic and computing government (ONGEI), in Lima, he met with the state's top officials in charge of computing, to make recommendations and present the advantages of using free software in public institutions, citing as an example Ecuador's experience in fully transitioning state agencies to an exclusive use of free software.

In Lima, at the Universidad Inca Garcilosa de la Vega, school officials highlighted the work of COSOLIG, the university's free software group, which is the first community in Peru to be part of an international network to promote free software nationally and throughout Latin America.

The Universidad Nacional del Callao's free software group, UNACINUX, which we thank for having organized and coordinated the entire visit, commented on its site that Stallman's speech there raised awareness of the importance of free software's social aspect and the fact that not all technological change is good. The free software movement has come a long way in Peru, and Stallman was pleased to note that the people who invited him run a Latin American free software install fest that, unlike most other FLISOL events, promotes completely free distros exclusively, and vigorously upholds the values of the movement. He was also happy to see that the members of San Marcux, the student group at the Universidad Nacional Mayor de San Marcos, in Lima, were continuing to train as free software speakers.

You can see photographic excerpts of some of Richard Stallman's recent appearances on his blog at `fsf.org/blogs/rms`, and hear those of his speeches for which we have recordings at `audio-video.gnu.org`. Please write to `rms-assist@gnu.org` with any photographs you would like to share or to extend an invitation for Richard to come speak.

The Lulzbot AO-100

LulzBot AO-100 3D printer is certifiably fun

by Nico Cesar, Peter (Peabo) Olson, and Ward Vandewege Systems Administration Team

We already covered the importance of having a free hardware certification in previous articles in this bulletin. The good thing about doing a hardware certification of a 3D printer is that you get to play with one of them![3] The LulzBot AO-100 3D printer melts plastic filament and

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[3]`ur1.ca/aiix2`

builds up a three dimensional object out of thin extruded layers. Two commonly used plastics are ABS and PLA.[4] When I first read about these kinds of printers I got really excited about the possibilities, but I thought it would be a challenge to get it working. Luckily, I was proven wrong. The LulzBot makes it quite easy to materialize creations in 3D.

The setup and software

The printer has 2 thermal components: the heater and the bed. The heater needs to reach 230 Celsius (446 Fahrenheit) for ABS plastic to melt. The bed needs to heat up to 110 Celsius (230 Fahrenheit). It takes about 10 minutes for the bed to be heated up sufficiently to start printing - the heater warms up more quickly. The heated bed prevents distortion of the object which might otherwise occur if it cools down too quickly. The extruder contains a mechanism which pulls the plastic filament into the melting area, and pushes it out through a small diameter nozzle, allowing for very fine features to be printed. As it extrudes each layer, the extrusion head moves to the right and left, and the bed moves forward and backward. When each layer is finished, the extruder moves a little higher to position itself for the next layer.

Objects to be printed are described by StereoLithography (STL) files that can be imported/exported from free software such as Blender[5] or FreeCAD.[6] There are also repositories of STL files available online. The file has to be translated to code that the printer will execute, or GCode. The STL to GCode conversion is done by Slic3r.[7] In this transformation there are many parameters to tweak, like the width of the filament, printing speed, and the fill pattern. It is also possible to merge several STL files into one GCode file. This allows for printing multiple copies of an object in one batch. When Slic3r has done its conversion, it prints out an estimate of the amount of raw material the print job will take. It also estimates the time required for the job. The GCode file needs to be sent to the printer. Pronterface is the software that handles the physical controls of the printer. It has X/Y/Z axis buttons that can be used to move the print head around. It shows the head and bed temperature. It also has a "Load" button to load the GCode file. With the "Print" button, GCode can bring your creations to (static) life. Pronterface also allows exploring of the layers of the GCode file, where the quality of the print may vary according to what direction the print head is moving, especially close to the edges of the object. Also, the printer generally uses an open cross-hatch pattern for interior sections of the object, to minimize the amount of plastic used (and hence optimize the print time) without impairing the structural stability of the object.

The hardware and the project

One of the most impressive aspects of 3D printers is that many of the parts can be produced by a 3D printer. If a part of a 3D printer breaks, it is often possible to print out a replacement part to fix the printer. The LulzBot

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[4] `www.lulzbot.com/en/3d-printer/153-ao-100.html`

[5] `www.blender.org`

[6] `directory.fsf.org/wiki/FreeCAD`

[7] `slic3r.org`

AO-100 seems very robust. The heated extruder is responsible for the X and Z axis movement. The bed provides the Y axis movement. About the electronics you can read in their homepage: "The Tosduino MEGA 2560 microcontroller board is an Arduino MEGA clone made by Tinyos.[8] The Mega is used in the RepRap community with RAMPS electronics and also widely used in the hacker and DIY community."

If you are buying a 3D printer, you probably have a project in mind. At the FSF we have a messy server room (who doesn't?). We have many cables that need to be organized better. Using the Lulzbot, we are printing cable holders and cable wrappers so that we can get the cables to fit into boxes and shelves.[9] There is an ongoing effort done by the MediaGoblin crew to provide a federated repository of 3D creations ready to print.[10] You can donate to MediaGoblin at `mediagoblin.org` to support this project.

Problems and solutions

Early on, we saw some glitches on the first printed layer. This was due to the slightly slippery bed surface. We used acetone mixed with some ABS to make the bed stickier, spreading it out on the bed as it heated up. Once started, the printing process should not be left unattended, because if the filament gets stuck it will mess up the printing. Luckily, the printing process is fun to look at and the stepper motors make almost musical tones as they

work. There are some design limitations to keep in mind when printing 3D objects as well. It is important not to make overhangs which might sag while the plastic is still soft. This may require an object to be printed in more than one section and then glued together, or might require some extra supporting struts to be printed which are later cut away. A mixture of acetone and ABS makes a very good glue for ABS objects, since the bonds it makes are like welds that are as strong as the rest of the object. This mixture can also be used to refine the surface appearance of the object, so that the layers are less visible.

The low-cost 3D printing revolution is just beginning. For sure, there is a lot of room for improvement on the technical level, but the current results are quite impressive for a low budget start. As users we have to make sure that we are on the right path and that our freedom is guaranteed. The LulzBot AO-100 3D printer allows us to generate 3D objects in freedom. Recommended! 🐃

Gavroche the MediaGoblin needs your support

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[8] `www.lulzbot.com/en/83-arduino-mega-2560.html`

[9] `www.thingiverse.com/thing:28696`, `www.thingiverse.com/thing:10219`

[10] `mediagoblin.org/news/3d-support`

GNU MediaGoblin and FSF team up to crowdfund the future of media publishing

by Chris Webber
GNU MediaGoblin Developer

The last couple of months have been intense. I'm the lead developer of GNU MediaGoblin, and about a month ago we launched a crowdfunding campaign we've been running hosted on FSF infrastructure. At the time of writing, we have a little bit less than a week left. It's not clear if we'll make the full goal, but it is clear that the project has been a success, and I'm thrilled that we've had the chance to jump in and do it.

MediaGoblin is a decentralized media publishing system for the web for images, audio, video, and more. You can think of it as a free as in freedom alternative to proprietary web services like Flickr, YouTube, SoundCloud, and more.

The crowdfunding campaign we did was done in a style similar to those that are becoming popular on sites like Kickstarter and IndieGoGo, except we are running on the FSF's infrastructure. This is the first campaign to be launched on this kind of scale with the FSF's systems (and as far as I know, the first to be launched in this style under any nonprofit's infrastructure). But we're happy with how it's gone: it's great to work with an organization that's directly aligned with our ideals, to know that the infrastructure hosting it is all free software, and to know that the overhead goes to supporting a nonprofit with directly aligned ideals. And it's been great for our messaging too:

people know the FSF doesn't support just anything, and that means MediaGoblin is Serious Business.

We've got a ton of work ahead to make the world's most beautiful media hosting future come true. We're off to a good start, and with this campaign wrapping up, we'll be able to put some focus into things. But this project needs a lot of help; we encourage you to check out `mediagoblin.org` and join our community. The future of media publishing is powered by you! 🐃

Libby, Zak and a GNU at the Windows 8 launch

GNU campaigns team takes to the streets

by Libby Reinish
Campaigns Manager

The FSF has a new campaigns team, and we've wasted no time in hitting the streets to advocate for free software.

Campaigns managers Libby Reinish (that's me) and Zak Rogoff took our GNU mascot to do a little early trick-or-treating at the Windows 8 launch in NYC this October. We handed copies of Trisquel out to folks standing in line to get a glimpse of Microsoft's new Frankenstein monster, a

truly scary operating system that will keep users subjugated.

Our trick-or-treat action is just the beginning for us. Zak, Kẏra and I have big plans to expand the FSF's ability to reach beyond our base and engage more people than ever before in the free software movement. We are re-imagining how the FSF can support people who want to switch to free software, planning new ways to get our boots on the ground to distribute free software, and scheming fresh tactics to stop DRM and protect user freedom.

We want to hear your ideas for promoting free software and standing up to companies that control their customers with proprietary software. So please, shoot us an email at `campaigns@fsf.org` and tell us what campaigns you think we should focus on next. 🐃

The Free Software Supporter

Sign up today to receive our monthly newsletter,
`fsf.org/fss`

Why GPL compliance work matters

by Donald Robertson, III Copyright and Licensing Associate

The Free Software Foundation expanded our licensing team this year, in large part to increase our compliance efforts. In addition to the educational materials we make available, active license enforcement is an important part of the service that we provide for the community.

At heart, compliance work matters for the same reasons that copyleft matters: we want to make sure that the software always remains free. Sometimes it makes sense to license a work under a permissive license. Under those circumstances, adding additional conditions won't really benefit the free software community, but would add some extra work. When those circumstances don't exist, and a copyleft license like the GPL is necessary to preserve user freedom, license enforcement should play an important role. A copyleft license that is not enforced, after all, offers no more protection than a simple permissive license. A lack of license enforcement has the perverse consequence of letting those who do not care about free software use a work without condition, while good community members will still go through the time and effort of making sure they fully comply.

That is why the FSF is dedicated to providing enforcement services for the community. Active enforcement is a difficult process. It involves investigating violations where information is purposefully hidden, understanding in minute detail the requirements of various free software licenses, and doggedly following up with potential violators in order to ensure their compliance. By handling these issues for the GNU Project, and offering assistance for all free software packages, the FSF hopes to free up developers so they can focus on their code.

The GPL is a promise that the software will always be free, and enforcing on its terms is one way that the Free Software Foundation helps to keep that

promise. That is why the FSF has expanded our compliance efforts. 🐃

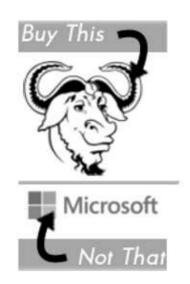# New LibrePlanet gaming server running Minetest

by Kÿra
Campaigns Organizer

The initial announcement of the LibrePlanet Gaming Collective garnered a lot of excitement and enthusiasm, and the most requested activity since then has been to host and play free games as a group. We are now excited to announce this new service to the community: a communal server for the LibrePlanet Gaming Collective! We have installed Minetest, the free software Minecraft replacement, as the first game, and we will expand to others soon. To accompany this, we are opening up a separate mailing list and IRC channel for the team, and we're excited to have you join us! The IRC channel is `#libreplanet-gaming` on freenode and you can subscribe to the list at: `lists.libreplanet.org/mailman/listinfo/gaming`.

To connect you'll need the Minetest 0.4.3 client (see `minetest.net` for download and install instructions), and the server can be reached at `games.libreplanet.org` over port 30000. You'll need to ask for interact privileges, but we should be able to accommodate your request quickly. If nobody is on the server, you can enquire on the mailing list or the IRC channel.

The server is running several simple mods, including the moreores mod by Calinou, the farming mod by PilzAdam, the bags mod by cornernote, and a few others. Explore to see what you can find!

Please give a big thanks to Mark Holmquist (MarkTraceur) for volunteering to set up and administer the gaming server. If you'd like to help administer the server, please get in touch on the mailing list or IRC channel. If you would like to get involved in the Minetest project, you should join the `#minetest` IRC channel and ask about how to get started. You could also join `#minetest-mods` and ask about how to add features to the game. 🐃

FSF buying guide: holiday shopping with free software values

by Zak Rogoff
Campaigns Manager

In previous Novembers, you may have seen the FSF's holiday buying guides, which we created to make it simple to support free software values with your holiday shopping. We're

bringing the guide back this year, but taking a different tack. We're going to do our best to add more individual recommendations in addition to the broad principles we focused on before.

My favorite idea so far is to mimic the format of the popular book series *Eat This, Not That*. Working from this idea, an entry in the guide would look something like the above image.

We plan for the guide to cover audio, video and ebooks as well as all kinds of computers and software. To get all this information together, we need your help. If you have a suggestion for a product to include (either as a *"Buy This"* or as a *"Not That"*), please post it at `fsf.org/buyingguide`.

Thanks for helping your fellow FSF members make ethical choices this holiday season. Happy holidays! 🐃