

Debian and GNU

Free Software, up and down the stream

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LibrePlanet

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Outline

- 1 Debian
- 2 ... and downstreams
- 3 ... and GNU

Outline

1 Debian

2 ... and downstreams

3 ... and GNU

foo is cool, let's install it!

- 1 download `foo-1.0.tar.gz`
 - ▶ bonus point: verify checksums and GPG-sig
- 2 `./configure`
 - ▶ error: missing bar, baz, ...
- 3 `foreach (bar, baz, ...)` go to 1 until (recursive) success
- 4 `make`
 - ▶ error: symbol not found
- 5 `make install`
 - ▶ error: cp: cannot create regular file `/some/weird/path`

now try scale that up to 17'000 sources releasing **3'000 new versions/month**

Free Software, *à point*: distributions

Distributions act as **intermediaries** between upstream software authors and final users. Distributions are meant to ease Free Software **life cycle management**.

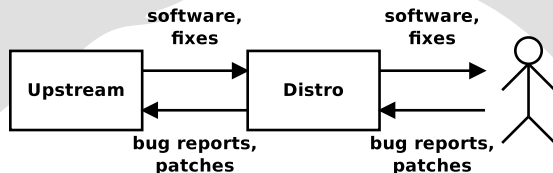
Within distributions **scope**:

- **package management**
- trusted sw delivery
- sw **integration**
- initial installation
- sw packaging
- upstream release tracking
- bug triage and forwarding
- porting

Outside distribution scope:

- upstream sw development (but beware of overlaps)
- “shielding” users from upstream and vice-versa

distributions have invented the current way we distribute FOSS



everybody wins (if done properly)

- freedom spreads
- more eyeballs, more shallow bugs
- more potential contributors

inspired by GNU (1983), Debian (1993) has turned distribution editing into a community effort

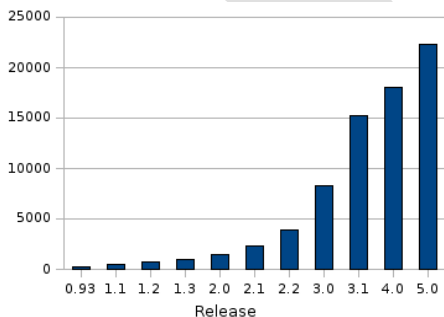
Debian — the operating system

flagship product: **Debian stable**

- binary distribution
- released every 24 months (\approx)
- a dozen architectures
- long-term, archive-wide security support (3-3.5 years)

renowned for

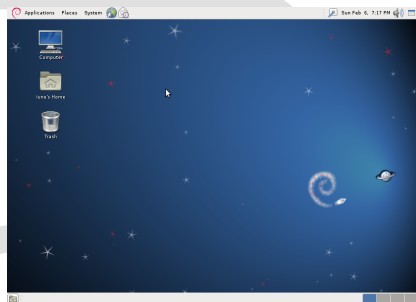
ports, stability, packaging system, old hw support, documentation, smooth upgrades, i18n/l10n, the testing suite, runs anywhere, technical policy, package choice, ...



one of the largest Free Software
porting platforms

Debian 6.0 “Squeeze” — looking back

- released: February 2011
- completely **Free Linux kernel**, firmware included
- **GNU/kFreeBSD**
- large choice of **pure blends**
 - ▶ education, medicine, GIS, chemistry, ...
 - ▶ blends.alioth.debian.org



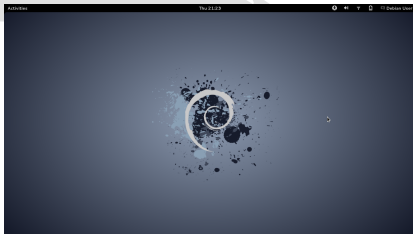
during Squeeze lifetime...

Debian is the most popular GNU/Linux on the Web (32.7%) overall, 1+ Web server out of 10 (10.8%) runs Debian

— w3techs.com, March 2013

Debian 7.0 “Wheezy” — looking forward

- **multiarch**
proper technical way of sharing packages across archs
 - ▶ 3rd party software, easily
 - ▶ cross-compilation
- **private cloud** deployment
 - ▶ OpenStack, Xen/XCP, ...
- **public cloud** support
 - ▶ EC2, Azure, ...
- new archs: **armhf, s390x**,
GNU/Hurd
didn't happen in time for Wheezy;
you can help for next time!
www.debian.org/ports/hurd/



Timeline

- freeze: June 30th, 2012
- release: *when it's ready*TM
ETA: Mar/Apr 2013

Contribute, today

- install/upgrade to Wheezy
- report bugs (+ patches)

Debian — the Project

Common cause:

Create the best, Free operating system.

Debian Social Contract

(1997)

- 1 100% Free Software
- 2 give back
- 3 don't hide problems
- 4 priorities: users & Free Software

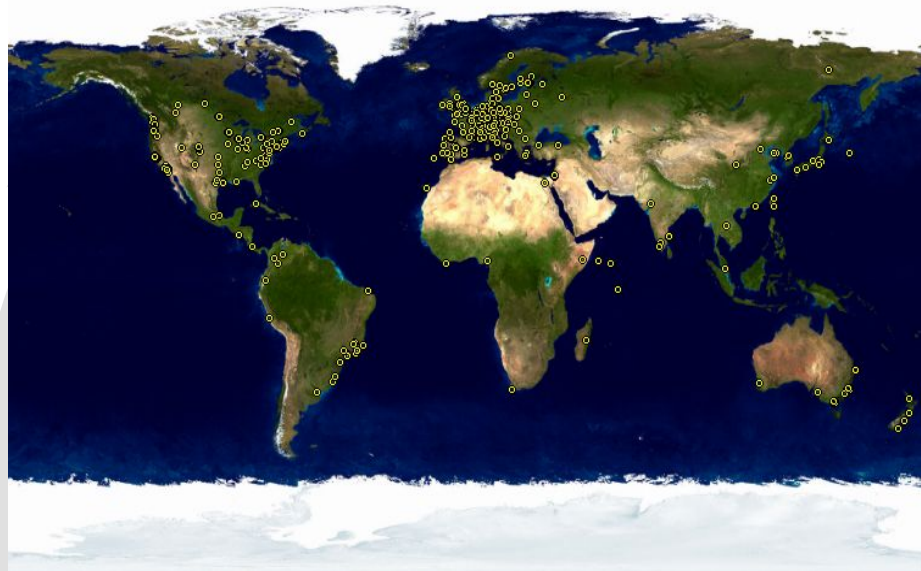
Debian Constitution

(1998)

Structures and rules of a Free Software-compatible democracy

Strong ideal motive to join: \approx 1'000 **members world-wide** + 4-5'000 contributors, volunteers

Debian — the Project (cont.)



Debian governance

on paper: pretty formal

- bodies: DPL, delegates, technical committee, secretary, ...
- procedures: NM process, general resolutions, ...

day-to-day: flat, bottom-up, almost anarchic

- teams (100x)
- maintainers (1'000x)
- all quite autonomous and with varying “political” opinions (yes, also on Free Software matters)

warning

maintainer opinion on \$thing \neq Debian position on \$thing

Debian Free Software Guidelines (DFSG)

To verify the “100% Free” promise, you need a definition of Free. The **Debian Free Software Guidelines** give such a definition.

http://www.debian.org/social_contract#guidelines

- require the **4 freedoms** to uphold
- allow to protect author’s **work integrity**, e.g. trademarks
“This is a compromise.”
- later chosen as basis for the “open source” definition
- **apply to all sorts of content**
 - ▶ firmware, documentation, artwork, music, . . .
 - ▶ i.e. Debian content is Free Culture-compatible



The thick red line

- works that do **not meet our Free Software standards**

*We acknowledge that some of our users require the use of works that do not conform to DFSG. We have created “contrib” and “non-free” areas in our archive for these works. The packages in these areas are **not part of Debian**, although they have been *configured for use with it*.*

Debian	not Debian	
main	contrib	non-free

- only **Debian by default**
rest not configured/distributed unless explicitly asked/looked for
- communication opportunity**: non-free is bad for your health
“if you cross the line, you’re on your own”
stimulate user demand for freedom (e.g. on hw vendors)

What's so special about Debian?

There are 300+ *active distributions* (distrowatch)

What's so special about Debian? Why should you care?

- 1 freedom
- 2 package quality
- 3 independence
- 4 decision making
- 5 a distro with many downstreams

What's so special about Debian?

There are 300+ *active distributions* (distrowatch)

What's so special about Debian? Why should you care?

- 1 freedom
 - ▶ rooted in Free Software principles
 - ▶ free the bottom up, dogfooding
- 2 package quality
- 3 independence
- 4 decision making
- 5 a distro with many downstreams

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There are 300+ *active distributions* (distrowatch)

What's so special about Debian? Why should you care?

- 1 freedom
- 2 **package quality**
 - ▶ policy
 - ▶ maintainers are experts of the sw they package
- 3 independence
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What's so special about Debian? Why should you care?

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 - ▶ volunteers
 - ▶ no babysitting company
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What's so special about Debian? Why should you care?

- 1 freedom
- 2 package quality
- 3 independence
- 4 **decision making**
 - ▶ do-ocracy & democracy
 - ▶ no imposed decision; “show me the code” discipline
- 5 a distro with many downstreams

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What's so special about Debian? Why should you care?

- 1 freedom
- 2 package quality
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 - ▶ derivatives!

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2 ... and downstreams

3 ... and GNU

Interlude — derivatives how to

Free Software 101

Freedom #0, to **run** the program, for any purpose

Freedom #1, to **study** how the program works, and change it

Freedom #2, to **redistribute** copies

Freedom #3, to **improve** the program, and **release** improvements

When applied to distros: derived distributions, AKA **derivatives**

- How?
- 1 take existing packages and add your extras
 - 2 patch & rebuild packages as needed
 - 3 sync periodically

Debian derivatives

Debian: a base for ≈ 140 *active derivatives* (distrowatch)

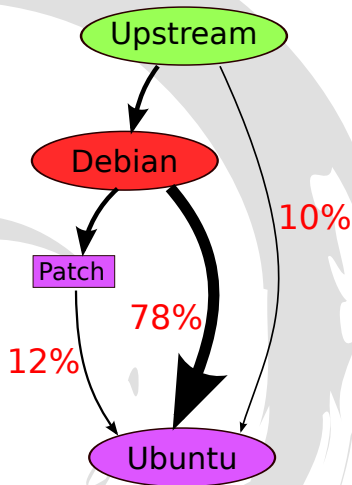
- Tucunare, LinEx, Inquisitor, Grml, UniventionCorporateServer, Vanillux, Emdebian, Crunchbang, PureOS, StormOS, Ubuntu, GNUSTEP, gNewSense, Debathena, Maemo, LMDE, SPACEflight, BCCD, Bayanihan, semplice, ArchivistaBox, Knoppix, Tails, BlankOn, AlienVault-OSSIM, DoudouLinux, Vyatta, Symbiosis, VoyageLinux, Lihuen, LinuxAdvanced, Aptosid, Canaima, siduction, ZevenOS-Neptune, BOSSlinux, Parsix, AstraLinux, ProgressLinux, Finnix, SprezzOS, CoreBiz, Epidemic-Linux, MetamorphoseLinux , ...

Why?

- quality & licensing assurances
- solid base system
- huge package base
- the “*universal OS*”, perfect for customizations

A Debian derivative example: Ubuntu

- started in 2004 by Canonical
target: desktop
- **Debian derivative**
- very popular (15–20x Debian?)
- historical/past correlations
 - main ↔ corporate
 - universe ↔ community
 - ▶ heavily customized/forked in main
 - ▶ very close to Debian elsewhere
- sprouting its own derivatives (≈80)
 - ▶ ... as Debian *transitive derivatives*



Data for Raring Ringtail, Jan 2013,
main + universe

Do you Debian?

- Ubuntu appears to be the **most customized Debian derivative**
- other derivatives ⇒ much closer to *pristine Debian*

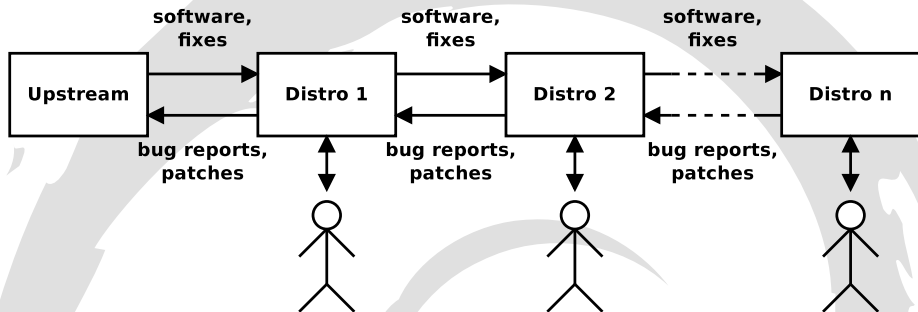
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if you are running a Debian (transitive) derivative, chances are **you heavily depend on Debian** and on its well-being

even if your distro hasn't told you

Free Software distribution pipeline

(mid 2000s)

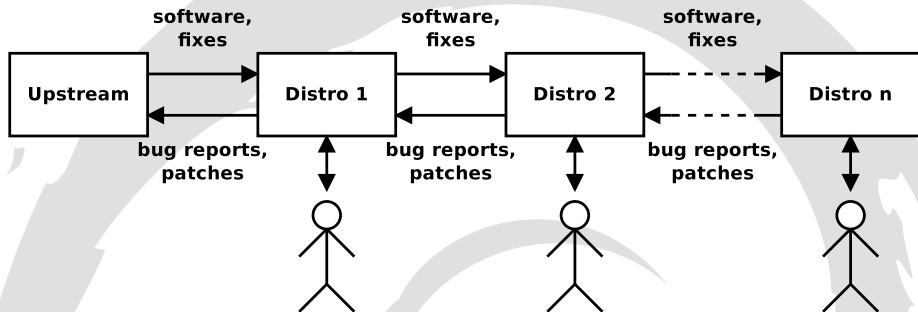


That's wonderful!

- freedom spreads
- more eyeballs, more shallow bugs
- more potential contributors

But.

- should be sustainable
- and benefit Free Software as a whole



That's wonderful!

- **freedom** spreads
- more **eyeballs**, more shallow bugs
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But.

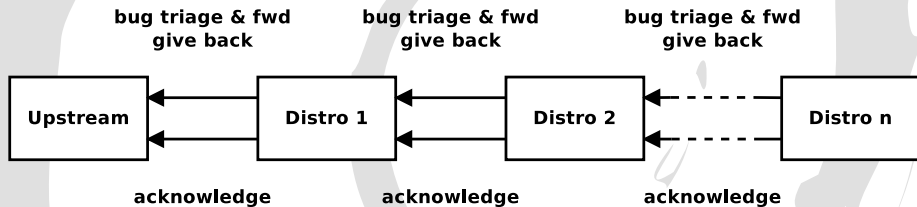
- should be **sustainable**
- and **benefit Free Software** as a whole

The role of downstream

Free Software is **bigger** and more important than Debian, or any other distro or project

Free Software golden rules and the distro pipeline

- 1 **push changes upstream**, i.e. reduce patch flow viscosity
- 2 **give credit** where credit is due



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Free distributions

*Below are the complete, ready-to-use GNU/Linux distributions we know follow the Guidelines for Free System Distributions [GFSD]. They have a **firm policy commitment to only include and only propose free software.***

— <https://www.gnu.org/distros/free-distros>

- 8 distros
- **Debian not one of them**
- we contribute as both downstream and **upstream**
4 free distros are **Debian derivatives** (DistroWatch)
(including the most popular ones?)

Cambridge, we've had a problem

Debian is not on the free distros list.
And that's a problem.
For free software. (yes, that's bold)

- external review
- duplication of efforts
- common target public

Cambridge, we've had a problem

Debian is not on the free distros list.
And that's a problem.

For free software. (yes, that's bold)

- external review
 - ▶ Debian's "100% free" promise is self-assessed
 - ▶ peer vigilance is better
- duplication of efforts
- common target public

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And that's a problem.

For free software. (yes, that's bold)

- external review
- **duplication of efforts**

*we recommend joining development of an existing
free distro rather than fragmenting effort by starting a
new one*

— GFSD

- common target public

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For free software. (yes, that's bold)

- external review
- duplication of efforts
- **common target public**
 - ▶ between Debian and GNU: Free Software enthusiasts
 - ▶ we are partitioning it, diminishing our **impact**...
 - ▶ ... and undermining **sustainability**

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Q: so, how do we fix this?

A: by getting Debian on the free distros list!

Q: great! so, what's the status of that?

A: ...

2004–2011 — non free firmware

Historical offender:

2004 voted as social contract exception for **Sarge** (rel. 2005)

2006 ditto for **Etch** (rel. 2007)

2008 ditto for **Lenny** (rel. 2009)

2011 Squeeze released with a fully free Linux kernel

Debian “Squeeze” makes key progress toward being a fully free distribution

Cheers to the Debian community!

With last Saturday’s “Squeeze” release, Debian took an important step towards being a fully free distribution and ensuring freedom for its users.

— Feb 8th, 2011, <https://www.fsf.org/news/debian-squeeze-makes-key-progress-toward-being-a-fully-free-distribution/>

FSF acknowledges. We appreciate.

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2011 — upstream/downstream relationships

Mutual feedback experiment for **GNU Hackers Meeting 2011** (GHM) in Paris:

*I would like [...] to present **how we feel about GNU as an upstream**, in case we have anything more to say about GNU than what we have to say about other upstreams [...] **if you are maintaining a GNU package in Debian**, I'd like to hear from you. Please mail me comments about your relationship with GNU as an upstream, whether it is good or bad [...]* — myself

- scope: **technical collaboration**
- good participation, good results
- with a 4:1 ratio, maintainers felt that **relationships with GNU are good**, better than with other upstreams¹

¹ see talk: “*Debian in context: distributions, upstreams, downstreams*”

Commonality of interests

Debian and GNU have striking **similarities** in their goals:

- an *operating system*
- *UNIX-like*
initially narrower (Linux-only) scope in Debian; largely aligned nowadays
- granting fundamental user *Freedom*s

Different and complementary means to achieve it:

- GNU by **developing** OS components
- Debian by **assembling** existing components

General feeling from GHM 2011 discussion:

We have a lot more in common
than what we disagree on.

2012 — let's discuss

[...] we should *either get Debian in FSF free-distros list, or document why Debian is not there*. I'm looking for Debian volunteers interested to participate in a *joint Debian/FSF team* [...]. The ideal outcome is an *agreed upon list of Debian "bugs"* that need to be solved. The public *fsf-collab-discuss* mailing list [on Alioth] has been setup for the activities of such a team.
— myself, debian-project, July 2012

- initial flurry of activity
- much arguing, some convergences, little work
- several good initiatives
 - ▶ e.g. document/track *non-free-ness reasons*
- e.g. some virtuous examples
 - ▶ thick red line approach in the *Debian Reference*

Now — it's all about communication

Current biggest offender:

“[contrib and non-free] are not thoroughly separated from the main Debian distribution”

- some of it is technical — easy to fix, but needs patches!
- **rest is communication**

What would be unacceptable is for the documentation to give people instructions for installing a nonfree program on the system, or mention conveniences they might gain by doing so.

For a borderline case, a clear and serious exhortation not to use the nonfree program would move it to the acceptable side of the line.

— GFSD

- hard to self-judge
- feedback loops, or more precise & agreed upon editorial guidelines needed

Status quo

Common goals and culture, interest to work together.
Progress!

- ~~non-free firmware~~
- scattered technical issues, need patches
- communication, need agreed upon editorial guidelines
- social contract (?)

Thanks!

Questions?

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<http://upsilon.cc/zack>
<http://identi.ca/zack>

about the slides:

available at <https://gitorious.org/zacchiro/talks/trees/master/2013/20130324-libreplanet>
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