

# Debian: 20 years and counting

Stefano Zacchiroli

Debian Developer  
Former Debian Project Leader

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15 ans du CRANS  
École Normale Supérieure de Cachan  
Cachan, France

## Free Software & your [ digital ] life

*Lester picked up a screwdriver. “You see this? It’s a tool. You can pick it up and you can unscrew stuff or screw stuff in. You can use the handle for a hammer. You can use the blade to open paint cans. You can throw it away, loan it out, or paint it purple and frame it.” He thumped the printer. “This [ Disney in a Box ] thing is a tool, too, but it’s not your tool. It belongs to someone else — Disney. It isn’t interested in listening to you or obeying you. It doesn’t want to give you more control over your life.” [...]*

*“If you don’t control your life, you’re miserable. Think of the people who don’t get to run their own lives: prisoners, reform-school kids, mental patients. There’s something inherently awful about living like that. **Autonomy makes us happy.**”*

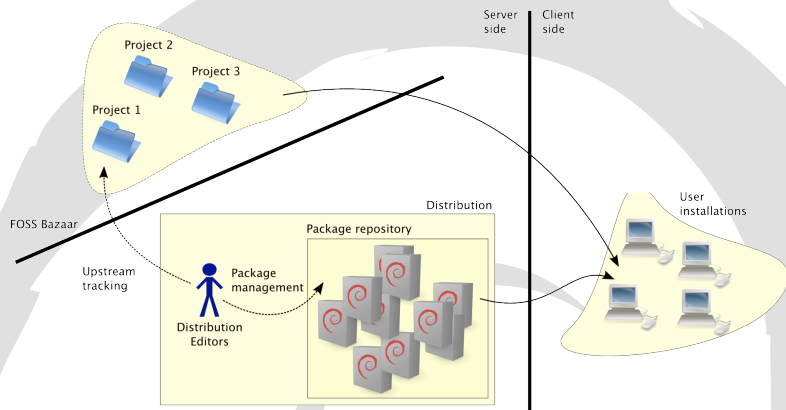
— Cory Doctorow, Makers  
<http://craphound.com/makers/>

*foo* is cool, let's install it!

- 1 download foo-1.0.tar.gz
  - ▶ checksum mismatch, missing public key, etc.
- 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



- ease software management
- key notion: the package abstraction
- offer coherent software collections
- killer application: package managers (& installers)

# Outline

1 Debian and Wheezy

2 Specialties

3 Derivatives

4 Contribute

# Debian: once upon a time

*Fellow Linuxers,*

*This is just to announce the **imminent completion** of a **brand-new Linux release**, which I'm calling the **Debian Linux Release**. [...]*

*Ian A Murdock, 16/08/1993  
comp.os.linux.development*

- make GNU/Linux **competitive** with commercial OS
- **easy** to install
- built **collaboratively** by software **experts**
- 1<sup>st</sup> major distro developed “**openly in the spirit of GNU**”  
FSF-supported for a while

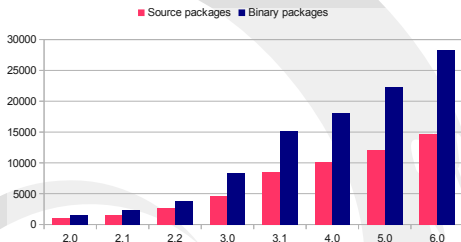
# $\frac{1}{3}$ of Debian: the operating system

flagship product: **Debian stable**

- binary distribution
- completely Free (DFSG)
- released every 24 months ( $\approx$ )
- a dozen architectures
- archive-wide security support (3-3.5 years)

renowned for

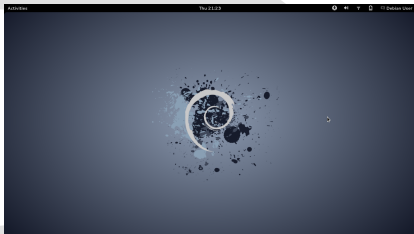
ports, stability, packaging system, old hw support, documentation, smooth upgrades, i18n/l10n, the testing suite, runs anywhere, technical policy, package choice, ...



one of the largest Free Software porting platforms

# Debian 7.0 “Wheezy” — highlithgs

- **multiarch**
  - ▶ 3rd party software, easily
  - ▶ cross-compilation
- **private cloud** deployment
  - ▶ OpenStack, Xen/XCP, ...
- **public cloud** support
  - ▶ EC2, Azure, GCE, ...
- **multimedia** codecs & frontends
  - ▶ 3rd party repositories
- new archs: **armhf, s390x**
- **desktop**: GNOME 3.x, KDE Plasma 4.x, XFCE, ...



- upgrades throughout the archive

**released: May 4th, 2013**

Most popular GNU/Linux on the Web ( $\approx 33\%$ ) overall, 1+ Web server out of 10 ( $\approx 10\%$ ) runs Debian — w3techs.com, October 2013



# $\frac{1}{3}$ of Debian: the Project

Common goal:

**Create the best, Free operating system.**

Debian Social Contract

(1997)

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

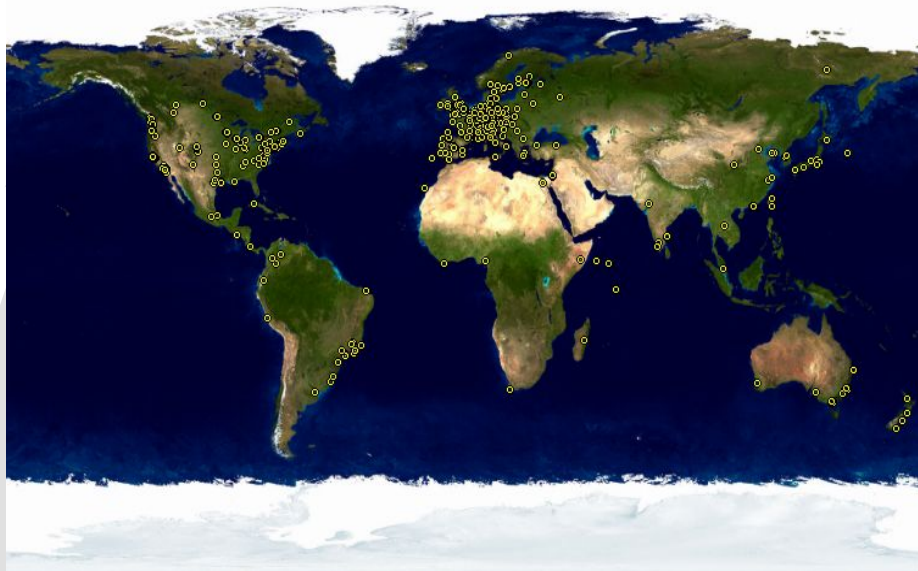
Debian Constitution

(1998)

Structures and rules of a Free-Software-compatible democracy

Strong motive to join:  $\approx$  1'000 **project members, world-wide**

# $\frac{1}{3}$ of Debian: the Project (cont.)



# Demography

## Developer's per country

2013 statistics:

<http://www.perrier.eu.org/weblog/2013/07/27#devel-countries-201307>

Take a guess: France's position?

# Demography

## Developer's per country

2013 statistics:

<http://www.perrier.eu.org/weblog/2013/07/27#devel-countries-201307>

Take a guess: France's position?

in terms of...

- n. of (active) project members: **#3**  
(ranking: us, de, **fr**, uk, it, es, jp)
- n. of (active) project members *pro capite*: **#11**  
(after: most northern EU countries)

# $\frac{1}{3}$ of Debian: the community

## Open development

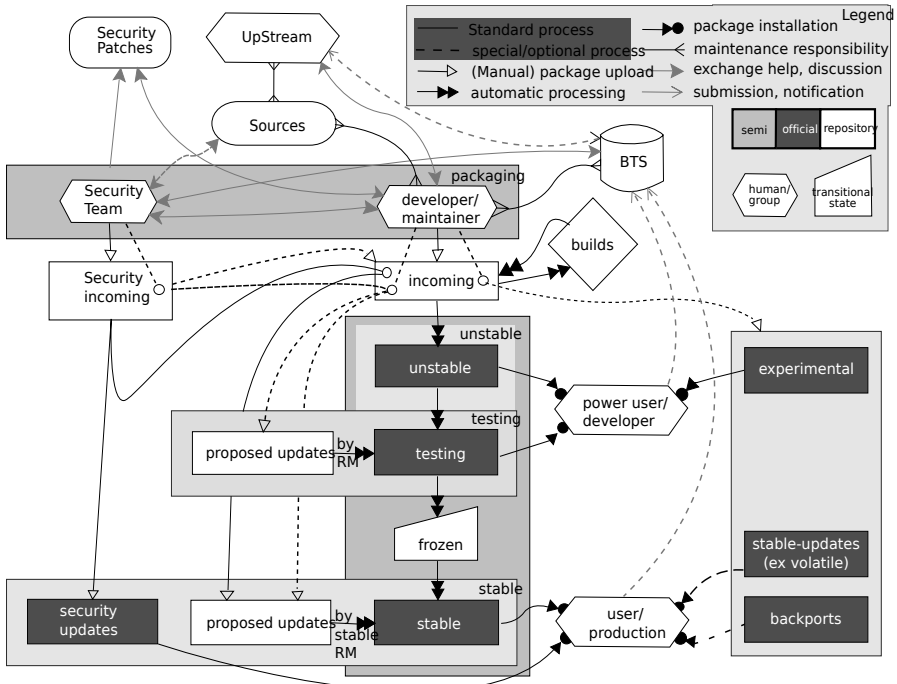
- we don't hide problem
- easy to have an impact (just “show me the code!”)

## Large amounts of communication

- mailing lists
- IRC
- (a few) Web services(, growing)
  - ▶ social: @debian, !debian on identi.ca

## Large number of tech-savvy users

- users help each other, contribute patches, get involved



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- 2 Specialties**
- 3 Derivatives
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# Debian: one of a kind?

1993 — not many distros back then

20 years later — *lots* of other distros

( $\approx$  300 — DistroWatch)

openSUSE, Linux Mint, PCLinuxOS, Slackware, Gentoo Linux, CentOS, FreeBSD, Arch, Sabayon, Puppy, Lubuntu, MEPIS, Ultimate, NetBSD, Tiny Core, Zenwalk, CrunchBang, Dreamlinux, Vector, Kubuntu, Maemo, Red Hat, aptosid, Peppermint, PC-BSD, Chakra, Salix, ClearOS, KNOPPIX, Xubuntu, Super OS, BackTrack, gOS, TinyMe, Zentyal, EasyPeasy, Frugalware, Clonezilla, Pardus, Meego, OpenBSD, Quirky, PC/OS, Zorin, **Debian**, SystemRescue, Element, Unity, SliTaz, Macpup, wattOS, Scientific, Mythbuntu, Slax, DragonFLY, Elive, linux-gamers, 64 Studio, Ubuntu, mageia, Nexenta, Parisx, NuTyX, GhostBSD, Kongoni, moonOS, LFS, Lunar, Imagineos, Untangle, Fedora, Yellow Dog, aLinux, Yoper, IPFire, BlankOn, Mandriva, PureOS, FreeNAS, Moblin, Linpus, TurboLinux, blackPanther, ...

with many **differences**:

- technical choices
- release management
- release schedule
- target user
- community
- support
- packaging system
- user base
- look & feel
- ...

## How is Debian different?



# Debian's special #1: package quality

## “ Culture of technical excellence ”

- package **design**: Policy  
i.e. “how a package should look like”
- package **testing**: lintian, piuparts,  
archive rebuilds (FTBFS), ...
- package maintainers are **software experts**
- **no 2<sup>nd</sup> class packages**, all are equal

## Debian release mantra

*we release when it's ready*

# Debian's special #2: freedom

Firm principles: developers and users bound by the *Social Contract*

- 1 promoting the “culture of Free Software” since 1993
- 2 **Free the bottom up**
  - ▶ in its software  
firmware included !
  - ▶ in its infrastructure
    - no non-free web services (for users)
    - no non-free infrastructure (for developers)

## Community awareness

- users know
- users trust Debian not to betray Free Software principles
- **high bar for software freedom** advocates

# Debian's special #3: independence

Debian is an **independent** project

- no (single) company babysitting us
- living up on:
  - 1 donations (money & hardware)
  - 2 gift-economy

... truly remarkable in today “big” distro world

people trust Debian choices not to be “profit-driven”

# Debian's special #4: decision making

## 1 do-ocracy

*An individual Developer may make any technical or nontechnical decision with regard to their own work;*

— Debian Constitution, §3.3.1.1

## 2 democracy

*Each decision in the Project is made by one or more of the following:*

*1. The Developers, by way of General Resolution [...]*

— Debian Constitution, §2

that means:

- reputation follows work
- no benevolent dictator, no oligarchy
- **no imposed decisions**  
by who has money, infrastructure, people, ...

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# 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

# Derivatives are game changers

Derivatives have changed the way in which distros are made

- derivatives' focus is on **customization**
- people power is needed “only” for that

**everybody wins** (if done properly)

- derivative: massive reuse of packaging work
- “mother” distro: reach out to new public
  - ▶ users *and* contributors

# Debian derivatives

Debian: a base for  $\approx 140$  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 , ...

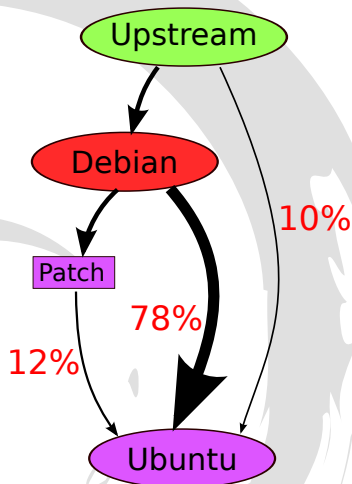
## Why?

- 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*

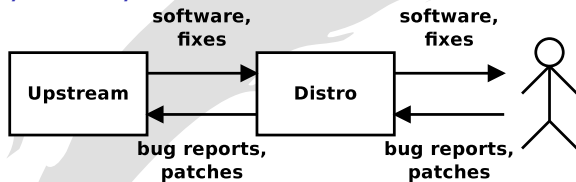
Tucunare, LinEx, Inquisitor, Grml, UniventionCorporateServer, Vanillux, Emdebian, Crunchbang, PureOS, StormOS, Ubuntu, GNUSTEP, gNewSense, Debathena, Maemo, LMDE, SPACEflight, BCCD, Bayanihan, semplice, ArchivistaBox, Knoppix, Tails, BlankOn, AlienVault-OSSIM, DoudouLinux, Vyatta, Symbiosis, VoyageLinux, Lihuen, LinuxAdvanced, Aptosid, Canaima, siduction, ZevenOS-Neptune, BOSSlinux, Parsix, AstraLinux, ProgressLinux, Finnix, SprezzOS, CoreBiz, Epidemic-Linux, MetamorphoseLinux, Debian, Xubuntu, Linux Mint, Ubuntu Studio, Mythbuntu, ArtistX, Asturix, Peppermint OS, TurnKey Linux, Kubuntu, Caixa Mágica, Lubuntu, ...

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

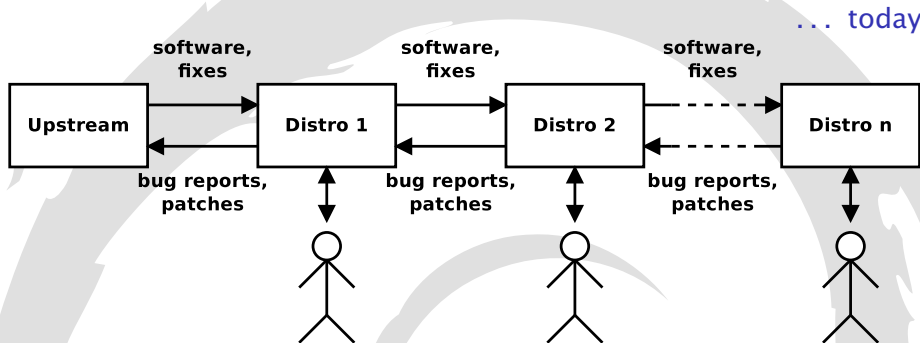
*even if your distro hasn't told you*

# The distribution pipeline

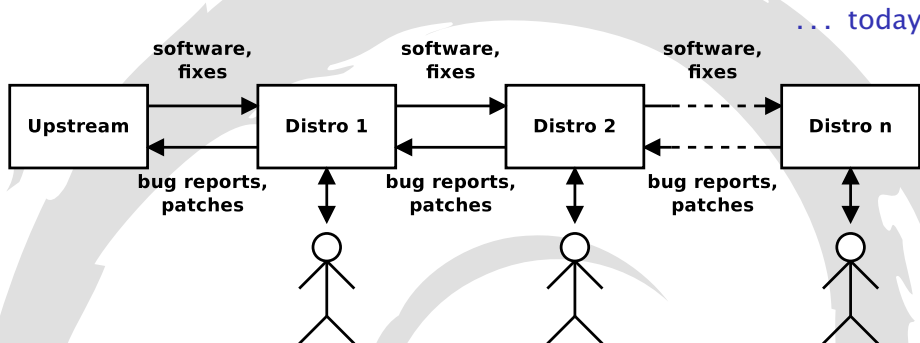
yesterday ...



# The *new* distribution pipeline



# The *new* distribution pipeline



That's wonderful!

- freedom spreads
- more eyeballs swallow more bugs
- more potential contributors

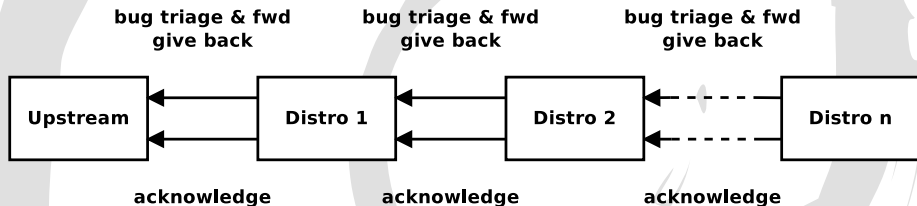
But.

- should be sustainable
- to everybody's benefit

# Free Software 101 — redux

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

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



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# Donate to Debian

even if completely volunteer-driven, Debian needs **resources**

- **hardware** for essential services
  - ▶ archive, buildbots, devel. machines, ...
- money for **hardware-related services**
  - ▶ guarantees, shipments, hosting, ...
- money to **sponsor developer meetings**
  - ▶ strengthen the community
  - ▶ get work done

## Donations

- donations: <http://www.debian.org/donations>
- partners program: <http://www.debian.org/partners>



# Contributing #1 — using Debian

- 1 test, report, triage, fix **bugs**
  - ▶ reportbug on your Debian, <http://bugs.debian.org>
- 2 monitor packages you care about
  - ▶ subscribe on <http://packages.qa.debian.org>

The screenshot shows the Debian package page for **dpkg**. The page is organized into several sections:

- general**: source: [dpkg](#) (source, admin), version: 1.16.9, maint: [Dpkg Developers](#), [Guillem Jover](#) (u), [Raphael Hertzog](#) (u), arch: any all, std-ver: 3.9.3, VCS: [Git](#) (browse)
- versions**: oldeststable: 1.14.31, stable: 1.15.8.13, stable-bpo: 1.16.9~bpo604, testing: 1.16.9, unstable: 1.16.9
- binaries**:
  - [dpkg](#) (595 bugs: 0, 134, 198, 31)
  - [dpkg-dev](#) (102 bugs: 0, 17, 84, 11)
  - [dselect](#) (99 bugs: 0, 34, 65, 0)
  - [libdpkg-dev](#) (1 bugs: 0, 0, 1, 0)
  - [libdpkg-perl](#) (4 bugs: 0, 1, 3, 0)
- todo**:
  - [Lintian](#) reports 2 warnings about this package. You should make the package [lintian](#) clean getting rid of them.
  - [Build log checks](#) report 1 warning about this package.
  - The BTS contains [patches fixing 16 bugs](#) (29 if counting merged bugs), consider including or untagging them.
- news**:
  - [2012-10-31] [dpkg 1.16.9 MIGRATED to testing](#) (Britney)
  - [2012-10-20] [Accepted 1.16.9 in unstable \(low\)](#) (Guillem Jover)
  - [2012-09-19] [Accepted 1.15.8.13 in stable \(low\)](#) (Guillem Jover)
  - [2012-08-20] [dpkg 1.16.8 MIGRATED to testing](#) (Britney)
  - [2012-07-21] [Accepted 1.16.8 in unstable \(low\)](#) (Guillem Jover)
  - [2012-07-02] [Accepted 1.16.7 in unstable \(low\)](#) (Raphaël Hertzog)
  - [2012-06-30] [Accepted 1.16.6 in unstable \(low\)](#) (Guillem Jover)
  - [2012-06-30] [Accepted 1.16.5 in unstable \(low\)](#) (Guillem Jover)
  - [2012-06-28] [dpkg 1.16.4.3 MIGRATED to testing](#) (Britney)
  - [2012-06-17] [Accepted 1.16.4.3 in unstable \(low\)](#) (Guillem Jover)
  - [2012-06-10] [Accepted 1.16.4.2 in unstable \(low\)](#) (Guillem Jover)
  - [2012-06-08] [Accepted 1.16.4.1 in unstable \(low\)](#) (Guillem Jover)
  - [2012-06-08] [Accepted 1.16.4 in unstable \(low\)](#) (Guillem Jover)
  - [2012-05-08] [dpkg 1.16.3 MIGRATED to testing](#) (Britney)
  - [2012-04-27] [Accepted 1.16.3 in unstable \(low\)](#) (Guillem Jover)
  - [2012-03-30] [dpkg 1.16.2 MIGRATED to testing](#) (Britney)
- bugs**: all: 412 (542), RC: 0, I&N: 143 (187), M&W: 265 (351), F&P: 4
- links**:
  - [homepage](#)
  - [changelog / copyright](#)
  - [build: logs, ports](#)
  - [build log checks](#)
  - [debcheck: unstable testing stable](#)
  - [lintian](#) (6, 2)
  - [popcon](#)
  - [110n](#) (67, 71)
  - [debtags](#)
  - [screenshots: 1, 2](#)
  - [RDF/XML description](#)

- ▶ try to reproduce bug and provide **patches**
- ▶ (eventually, become co-maintainer)

## Contributing #2 — adopt packages in need of love

- find the ones you use:

```
apt-get install devscripts ; wpp-alert  
apt-get install how-can-i-help
```

- learn **packaging** with the **Debian packaging tutorial**

```
http://www.debian.org/doc/manuals/  
packaging-tutorial/packaging-tutorial.en.pdf
```

or:

```
apt-get install packaging-tutorial
```

*(aussi disponible en français!)*

## Contributing #3 — join packaging teams

- many teams
- focused on a **programming language** or on a **field of use**
  - ▶ Python, Java, Perl, Ruby, OCaml, ...
  - ▶ Bluetooth, Cloud, Games, Med, Science, VoIP, ...
- excellent way to **learn from experienced contributors**

[http://wiki.debian.org/Teams#Packaging\\_teams](http://wiki.debian.org/Teams#Packaging_teams)

## Contributing #4 — hack *on* the Debian infrastructure

- suitable for all **programmers**
- opportunity
  - complex and heterogeneous infrastructure
  - **impact** on millions of (indirect) users
- services provide **link to source code** in page footer

### Example (<http://buildd.debian.org>)

*The source code for wanna-build is available as a **Git repository (Gitweb)**. [...] sbuild and buildd live together in the **sbuild.git repository (Gitweb)** in the buildd-tools Alioth project.*

### Example (<http://sources.debian.net>)

*Debsources — Copyright (C) 2011–2013 Matthieu Caneill, Stefano Zacchiroli, and **contributors**. License: **GNU AGPLv3**. [...] Source code: **Git**. Contact: **info@sources.debian.net**.*

## Contributing #5 — work on non-development tasks

- translation
- design (themes, websites)
- communication (newsletters & press releases)
- events (DebConf, mini-DebConf)
- videoteam
- documentation
- accounting
- ...

**Fundamental activities** for the Debian Project to live long and prosper.

<http://wiki.debian.org/Teams>

# Join Debian

choose your commitment:

**package maintainer:** maintain packages, via **sponsoring Debian Maintainer (DM)**: upload your own packages

- ▶ advocacies required

**Debian Project Member (DD)**: become a Debian “citizen”

- ▶ <http://nm.debian.org>
- ▶ voting right
- ▶ upload access to the whole archive
- ▶ **all kinds of contributions equally welcome!**

*for packagers*

## Zack's tips for wannabe Debianers

- 1 pick a team: <http://wiki.debian.org/Teams>
- 2 stay on their mailing list and IRC channel
- 3 triage bugs, test patches, etc.
- 4 ... the rest will come!

# Association Debian France

*L'Association Debian France a pour buts le **soutien** et la **promotion** du **Projet Debian en France**.*

- ≈60 membres
- activités récentes
  - ▶ production de **goodies** (polos, Buff, autocollants, ...)
  - ▶ organisation **mini-DebConf Paris 2012**  
(150 contributeurs Debian de toute Europe)
  - ▶ présence Debian à **Solution Linux 2012** et **2013**
  - ▶ **meetup**  
1e soirée. le 16 octobre: ≈40 personnes, talks, gpg, pizza!
  - ▶ **mini-DebConf Paris 2014** en janvier/février

<http://france.debian.net/>

# Want to know more?

- on the **web**
  - ▶ <http://www.debian.org>
  - ▶ <http://wiki.debian.org>
- **social media**: <http://identi.ca/debian>
- **mailing lists**: <http://lists.debian.org>
- **IRC**: #debian-\* channels on [irc.debian.org](http://irc.debian.org)
  
- **ask me!**



# Thanks!

## Questions?

Stefano Zacchioli  
zack@debian.org

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

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