I'm a programmer. How can I help Debian?

Antonio Terceiro

A Christmas story

terceiro@lemur: /home/terceiro/src/debian/ci/debci 80x24	
debci (master) \$ rspec	
Finished in 1.7 seconds (files took 1.77 seconds to load) 251 examples, 0 failures	
Coverage report generated for RSpec to /home/terceiro/src/debian/ci/debci/covge. 1162 / 1323 LOC (87.83%) covered. debci (master) \$ [era

I really like automated testing $% \left(1\right) =\left(1\right) \left(1\right)$



I also really like Debian

Then I got to know the word of autopkgtest(1)

- automatic as-installed testing for Debian packages.
- Started by Ian Jackson in/for Ubuntu in 2006 (!).
- Later maintained by Martin Pitt.
- In 2013 there were \sim 100 packages with autopkgtest support in the Debian archive.
- "Someone should create a service to run autopkgtest on the entire archive".



ci.debian.net is born in late 2013

autopkgtest support in Debian after 5+ years

unstable/amd64



Figure 1:

origami-pdf

PDF analysis and manipulation tool

action needed	
Debci reports failed tests	high
Problems while searching for a new upstream version	high
→ A new upstream version is available: 2.1.0	high
 The VCS repository is not up to date, push the missing commits. 	high
 Standards version of the package is outdated. 	high
 The package has not entered testing even though the delay is over 	normal
→ lintian reports 18 warnings	normal

testing migrations

excuses:

- Migration status for origami-pdf (- to 2.0.0-1): BLOCKED: Rejected/violates migration policy/introduces a regression
- Issues preventing migration:
- Updating origami-pdf introduces new bugs: #951248

 autopkgtest for origami-odf/2,0.0-1; amd64; Regression , arm64; Regression •
- Additional into:
- Piuparts tested OK https://piuparts.debian.org/sid/source/o/origami-pdf.html
- 1307 days old (needed 5 days)
- Not considered

news [2019-09-16] origami-pdf REMOVED from testing (Debian testing watch) [2019-01-09] Accepted origami-pdf 2.1.0-1~exp1 (source) into experimental (Cédric Boutillier) [2016-11-04] origami-pdf 2.0.0-1 MIGRATED to testing (Debian testing watch) [2016-10-28] Accepted origami-pdf 2.0.0-1 (source) into unstable (Antonio Terceiro) [2015-12-09] origami-pdf 1.2.7-3 MIGRATED to testing (Debian testing watch) [2015-12-03] Accepted origami-pdf 1.2.7-3 (source) into unstable (Antonio Terceiro) [2015-06-21] origami-pdf 1.2.7-2 MIGRATED to testing (Britney) [2015-06-12] Accepted origami-pdf 1.2.7-2 (source all) into unstable, unstable (Antonio Terceiro)

State of Debian CI

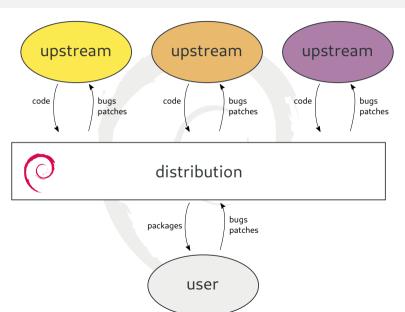
- Well maintained; slow but steady progress.
- Lots of issues to be fixed and possible improvements to be made across the platform.
 - debci.
 - autopkgtest.
 - autodep8.
- Bus factor:
 - System maintenance: 2
 - Code: 1

Goals of this talk

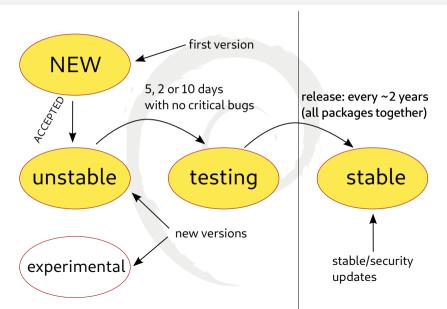
- Present contribution opportunities for people willing to do pure programming work (i.e. not necessarily packaging).
- Point newcomers to where they can find information on how to contribute to these sub-projects.
- Highlight Debian services and tools that could use some help.

How Debian works

How a distribution works



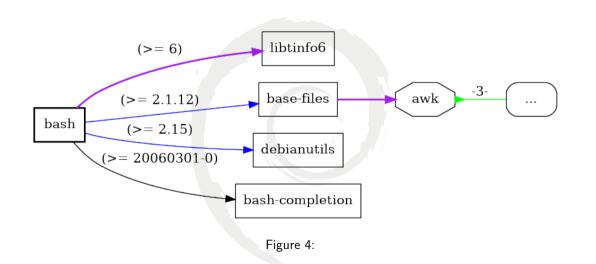
The Debian release cycle



The scale of Debian (as of May 2020)

- Unique contributors in 2020: 1219 (lower bound)
 - Need to communicate, coordinate, collaborate ...
- Size of the archive: 30,000+ source packages
 - Need to be maintained, improved, tested . . .
 - Very large dependency tree

bash dependency tree



asciidoctor dependency tree

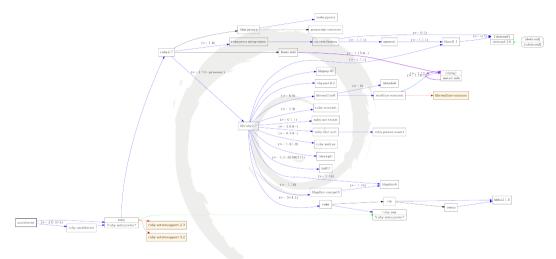
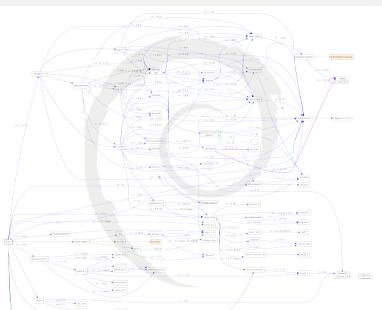


Figure 5:

mutt dependency tree



The ongoing work of putting Debian together

- A lot of work goes into keeping that ecosystem healthy
- Packages need to
 - Be installable;
 - Build from source;
 - Receive security updates;
 - Not have release critical bugs;
 - Have an acceptable quality overall.
 -
- Every time a package is updated it's possible that update causes problems for packages that depend on it
- Humanly impossible to keep track of everything
 - We need services and tools
 - That then need to be maintained, fixed, improved, tested ...

How you can help

Coming up next

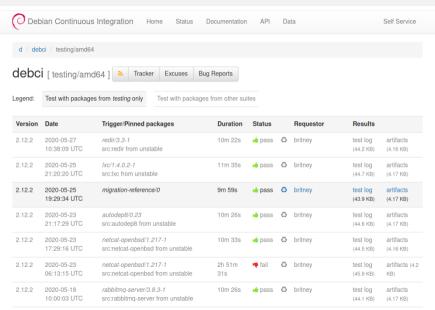
- I will highlight some projects based on a call sent to debian-project (and my own stuff of course).
- This does not mean these are the only projects in Debian that need help.
- Everything in Debian needs help!
 - "Technical": packages, services, tools, ports...
 - "Non-technical": publicity, community, events, translation, ...
 - Programming happens to be the focus of this particular talk.
- List of Debian services: https://wiki.debian.org/Services.

How to get started

- First step: get a development instance running locally.
- You do not need permission to read the source, study how it works, and trying to fix bugs or make improvements (this is free software after all)
 - For larger changes, it's better to discuss first
- To get help, use available contact information, or Debian Mentors if you can't find contacts or are otherwise stuck.
- Bear in mind that people are busy, so you might not get an immediate answer. Be patient.

Some projects that could use your help

ci.debian.net: Debian Continuous Integration



ci.debian.net: basic information

- Type: service/tool
- Programming Language(s): Ruby, Shell, ChefTM
- Link:
 - Service: https://ci.debian.net/
 - Source code: https://salsa.debian.org/ci-team/debci
- Contact:
 - IRC: #debci (OFTC)
 - Mailing List: debian-ci@lists.debian.org

dose3: dependency analyzer, used by QA and buildds



Packages not installable in scenario testing main

In a pair n/m, n is the number of packages that are build for that architecture, m is the number of packages with Architecture-all.

Summary for the last 7 days

Date	amd64	arm64	armel	armhf	1386	mips64el	mipsel	ppc64el	s390x	some	each
Today's Weather:	*	*	999	**	*	*	*	*	*	,,,	**
2020-05-28 05:00:02	0/1	0/44	0/1742	0/133	0/19	0/455	0/186	0/84	0/158	0/2166	<u>0/1</u>
Diff	+0/0 -0/0	+0/0 -0/0	+0/2 -0/1	+0/0 -0/0	+0/0 -0/0	+0/2 -0/0	+0/0 -0/0	+0/2 -0/0	+0/2 -0/0	+0/2 -0/1	+0/0 -0/0
2020-05-27 05:00:02	0/1	0/44	0/1741	0/133	0/19	0/453	0/186	0/82	0/156	0/2165	<u>0/1</u>
Diff	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0
2020-05-26 05:00:02	<u>0/1</u>	0/44	0/1741	0/133	0/19	0/453	0/186	0/82	<u>0/156</u>	0/2165	<u>0/1</u>
Diff	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/1 -0/0	+0/0 -0/0	+0/0 -0/0	+0/1 -0/0	+0/1 -0/0	+0/0 -0/0
2020-05-25 05:00:02	<u>0/1</u>	0/44	0/1741	0/133	0/19	0/452	0/186	0/82	<u>0/155</u>	0/2164	<u>0/1</u>
Diff	+0/0 -0/0	+0/0 -0/0	+0/1 -0/2	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/1 -0/2	+0/0 -0/0
2020-05-24 05:00:01	0/1	0/44	0/1742	0/133	0/19	0/452	0/186	0/82	0/155	0/2165	<u>0/1</u>
Diff	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0
2020-05-23 05:00:02	0/1	0/44	0/1742	0/133	0/19	0/452	0/186	0/82	0/155	0/2165	0/1
Diff	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0	+0/0 -0/0
2020-05-22 05:00:02	<u>0/1</u>	0/44	0/1742	0/133	0/19	0/452	0/186	0/82	0/155	0/2165	<u>0/1</u>

dose3: basic information

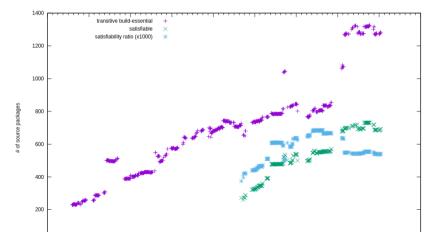
- Project: dose3
- Type: tool/service
- Programming Language(s): OCaml
- Link:
 - Tool: https://gitlab.com/irill/dose3
 - Debian QA service: https://salsa.debian.org/qa/dose
- Contact:
 - Johannes 'josch' Schauer
 - email: josch@debian.org
 - IRC: josch on IRC (OFTC) (channel #debian-qa)

botch: dependency graph analyzer, used by bootstrap.d.n.

The data was generated using Packages and Sources files from <u>snapshot.debian.org</u>, doing the analysis from 2005-03-12 to now using a 5-day interval.

The analysis was not done on all of Debian sid but only on the packages that form the dependency closure of build-essential. For a list, read essential, html or download a machine readable version from here.

The graph shows the absolute number of source packages in red and the absolute number of source packages that satisfy their cross build dependencies in green



botch: basic information

- Project: botch
- Type: tool
- Programming Language(s): OCaml
- Link:
 - https://gitlab.mister-muffin.de/debian-bootstrap/botch
- Contact:
 - Johannes 'josch' Schauer (josch@debian.org)
 - josch on IRC (OFTC) (channel #debian-qa)



devscripts

scripts to make the life of a Debian Package maintainer easier

Jump to package... Go

Register | Log in Subscribe

bugs 📠

I10n (95, -)

ubuntu 💿

versions 2.20 Subuntul

debci

all:

general source: devscripts (main) version: 2 20 3 maintainer: Devscripts Maintainers (DMD) uploaders: Pierre-Elliott Bécue romoi - Mattia Rizzolo IDMD1 arch: anv std-ver: 4.5.0 VCS: Git (Browse, OA) versions 🖾 🖾 o-o-stable: 2.15.3+ deb8u1 0-0-sec: 2.15.3+ deb8u1 oldstable: 2.17.6+ deb9u2 old-bpo: 2.19.5+ deb10u1~bpo9+2 stable: 2.19.5+ deb10u1 stable-bpo: 2.20.3~ bpo10+1 testing: 2.20.3 unstable: 2.20.3

action needed	
45 bugs tagged patch in the BTS	normal
 Depends on packages which need a new mainta 	iner
version in VCS is newer than in repository, is it time to upload?	normal
 lintian reports 3 warnings 	normal
\smile RFH: The maintainer is looking for help with this package.	normal
news	8
[2020-05-03] Accepted devscripts 2.20.3~bpo10+1 (source) into buster-backports (Mattia Rizzolo)	L
[2020-05-01] devscripts 2.20.3 MIGRATED to testing (Debian testing watch)	g
[2020-04-25] Accepted devscripts 2.20.3 (source) in unstable (Mattia Rizzolo)	nto
[2020-02-21] Accepted devscripts 2.20.2~bpo10+1 (source) into buster-backports (Mattia Rizzolo)	L
[2020-02-12] devscripts 2.20.2 MIGRATED to testing (Debian testing watch)	g
[2020-02-05] Accepted devscripts 2.20.2 (source) in unstable (Mattia Rizzolo)	nto
[2020-01-31] Accepted devscripts 2.20.1 (source) in unstable (Mattia Rizzolo)	nto
[2019-10-31] Accepted devscripts 2.19.7~bpo10+1 (source) into buster-backports (Mattia Rizzolo)	L
[2019-10-24] devscripts 2.19.7 MIGRATED to testing	g



423 409

devscripts: basic information

- Project: devscripts
- Type: tool
- Programming Language(s): Shell, Python, Perl
- Link: https://salsa.debian.org/debian/devscripts
- Contact:
 - IRC: #devscripts on IRC (OFTC)

licensecheck



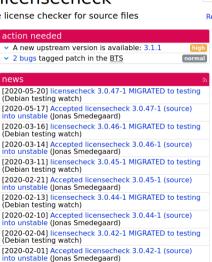
licensecheck

simple license checker for source files



general source: licensecheck (main) version: 3 0 47-1 maintainer: Debian Perl Group (archive) (DMD) (LowNMU) uploaders: lonas Smedegaard [DMD] arch: all std-ver: 4.5.0 VCS: Git (Browse, OA) versions 🗷 🗷 oldstable: 3 0 29-1 stable: 3.0.31-3 testing: 3.0.47-1 unstable: 3.0.47-1 versioned links 3.0.29-1: 由 任 本 火 由 3.0.31-3: 比 仁 本 火 南 3.0.47-1: 山 仁 本 火 南

binaries



[2020-01-30] Accepted licensecheck 3.0.41-1 (source)

into unstable (Ionas Smedegaard)



3 bugs

licensecheck: basic information

- Project: licensecheck
- Type: tool
- Programming Language(s): Perl
- Link: https://salsa.debian.org/perl-team/modules/packages/licensecheck
- Contact:
 - Jonas Smedegaard (dr@jones.dk)

Debian KeyRing



About Debian Getting Debian Support Developers' Corner

debian / keyring.debian.org

Debian Public Key Server

This public key server provides simple HKP lookup and add requests for Debian developer and maintainer public keys.

The server may be accessed with gpg by using the --keyserver option in combination with either of the --recv-keys or --send-keys actions.

Please note that this server is meant only for basic key retreive/update operation, and does not implement search functionality. To search for a specific Debian Developer, use the Developer LDAP Search interface.

Only keys in the Debian keyrings (ie those for DDs and DMs) will be returned by this server and only pre-existing keys will be updated, although a copy of all updates will be forwarded to the keyserver network.

You can use the keyring server for the following purposes:

Fetch a key

Once you know the key's ID, just ask the server for it:

\$ qpq --keyserver keyring.debian.org --recv-keys 0x673A03E4C1DB921F

Debian keys may also be retrieved by using the form at db.debian.org or:

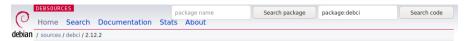
finger user@db.debian.org

Update your key expiry, add/edit/revoke subkeys or user IDs

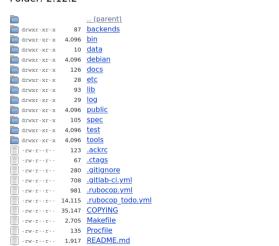
Debian Keyring: basic information

- Project: Debian Keyring
- Type: service
- Programming Language(s): Python, Ruby, Bash, ...
- Link::
 - Home page: https://keyring.debian.org/
 - source code: https://salsa.debian.org/debian-keyring
- Contact:
 - Gunnar Wolf (gwolf@debian.org)

sources.debian.org



Folder: 2.12.2



package info (click to toggle) debci 2.12.2

- links: PTS, VCS
- area: main
- in suites: bullseye, sid
- size: 1,236 kB
- SLOC: ruby: 4,114; sh: 2,848; javascript: 98; makefile: 82; perl: 11

sources.debian.org: basic information

- Project: sources.debian.org
- Type: service
- Programming Language(s): Python
- Link:
 - Service: https://sources.debian.org/
 - Source code: https://salsa.debian.org/qa/debsources
 - Bugs: http://deb.li/debsrcbugs
- Contact:
 - #debian-qa on IRC

contributors.debian.org

Coorobi



This is a list of all the 1219 people and 9 teams whose most recent contribution to Debian was in 2020. The information is based on our current knowledge, which you can help us improve.

Coorobi

Search:		Search:	
Person	†ı Until	Team	†↓ Until †↓
Wookey	Maio 2020	bugs.debian.org	Maio 2020
Aaron M. Ucko	Maio 2020	debtags.debian.org	Maio 2020
Aaron Schrab	Maio 2020	ftp.debian.org	Maio 2020
Aaron Zauner	Fevereiro 2020	i18n.debian.org	Maio 2020
Abdelhakim Qbaich	Fevereiro 2020	lists.debian.org	Maio 2020
abhijith	Maio 2020	mentors.debian.net	Maio 2020
Abou Al Montacir	Maio 2020	nm.debian.org	Maio 2020
Achim Schaefer	Janeiro 2020	spamreview	Maio 2020
Adam Borowski	Maio 2020	wiki.debian.org	Maio 2020
Adam D. Barratt	Maio 2020	Showing 1 to 9 of 9 entries	
Adam Majer	Abril 2020		
Adam Sjøgren	Março 2020		

contributors.debian.org: basic information

- Project: Debian Contributors
- Type: service
- Programming Language(s): Python
- Link:
 - Service: https://contributors.debian.org/
 - Source code and issues: https://salsa.debian.org/nm-team/contributors.debian.org
 - Bugs: https://bugs.debian.org/nm.debian.org
- Contact:
 - #debian-newmaint on IRC (OFTC)

Security Team



Security Information

Keeping your Debian system secure		
Recent Advisories		
Contact Information		

Debian takes security very seriously. We handle all security problems brought to our attention and ensure that they are corrected within a reasonable timeframe. Many advisories are coordinated with other free software vendors and are published the same day a vulnerability is made public and we also have a <u>Security Audit</u> team that reviews the archive looking for new or unfixed security bugs.

Experience has shown that "security through obscurity" does not work. Public disclosure allows for more rapid and better solutions to security problems. In that vein, this page addresses Debian's status with respect to various known security holes, which could potentially affect Debian.

Debian also participates in security standardization efforts: the <u>Debian Security Advisories</u> are <u>CVE-Compatible</u> (review the <u>cross references</u>) and Debian is represented in the Board of the <u>Open Vulnerability Assessment Language</u> project.

Keeping vour Debian system secure

_

Security Team: basic information

Development needed for security-specific features in dak (Debian Archive Kit) and the Debian Security Tracker.

• Project: Debian Security Team

• Type: team (!)

• Programming Language(s): Python

• Link: https://www.debian.org/security/

Contact:

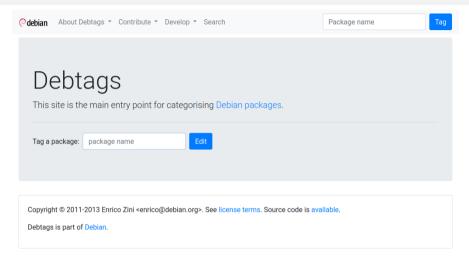
team@security.debian.org

```
terceiro@lemur: /home/terceiro 95x32
-s apt show vim
Package: vim
Version: 2:8.2.0716-3
Priority: optional
Section: editors
Maintainer: Debian Vim Maintainers <team+vim@tracker.debian.org>
Installed-Size: 3.090 kB
Provides: editor
Depends: vim-common (= 2:8.2.0716-3). vim-runtime (= 2:8.2.0716-3). libacl1 (>= 2.2.23). libc6
(>= 2.29), libcanberra0 (>= 0.2), libgpm2 (>= 1.20.7), libselinux1 (>= 1.32), libtinfo6 (>= 6)
Suggests: ctags, vim-doc, vim-scripts
Homepage: https://www.vim.org/
Tag: devel::editor, implemented-in::c, interface::commandline.
interface::text-mode, role::program, scope::application,
uitoolkit::ncurses, use::editing, works-with::text, works-with::unicode
Download-Size: 1.363 kB
APT-Manual-Installed: yes
APT-Sources: http://ftp.br.debian.org/debian_unstable/main_amd64_Packages
Description: Vi IMproved - enhanced vi editor
Vim is an almost compatible version of the UNIX editor Vi.
```

Many new features have been added: multi level undo, syntax highlighting, command line history, on-line help, filename completion, block operations, folding, Unicode support, etc.

This package contains a version of vim compiled with a rather standard set of features. This package does not provide a GUI version of Vim. See the other vim-* packages if you need more (or less).

debtags.debian.org



debtags.debian.org: basic information

- Project: Debtags
- Type: service
- Programming Language(s): Python/Javascript
- Link:
 - Service: https://debtags.debian.org/
 - Source code: https://salsa.debian.org/debtags-team/debtagsd
 - Bugs: https://bugs.debian.org/debtags.debian.org
- Contact:
 - Enrico Zini (enrico@enricozini.org)

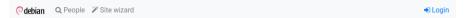
moinmoin: Debian Wiki software



moinmoin: basic information

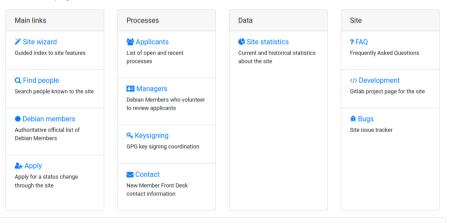
Debian needs the 2.0 release to happen.

- Project: moinmoin
- Programming Language(s): Python
- Link:
 - Upstream: https://github.com/moinwiki/moin
 - Debian Service: https://wiki.debian.org/
- Contact:
 - upstream



Debian New Members

Welcome to the New Members website. This is the place to apply for Debian membership, and to manage one's status in the project.



nm.debian.org: basic information

- Project: Debian New Members
- Type: service
- Programming Language(s): Python
- Link:
 - Service: https://nm.debian.org/
 - Source code: https://salsa.debian.org/nm-team/nm.debian.org
 - Bugs: https://bugs.debian.org/nm.debian.org
- Contact:
 - #debian-newmaint on IRC (OFTC)



Debian Single Signon

test certificates

Debian has a Single Sign-On system for authenticating on web services, based on Client Certificates. Certificates are issued by this site and can be used on any site that is setup to accept them.

User and developer documentation for Debian's Single Sign-On is in the DebianSingleSignOn page in the Debian wiki.

Manage Single Signon certificates

Debian account certificates



What is this?

This is Debian's web signon service. You can find some documentation on <u>this wiki page</u>.

If you are Debian Developer you can set your SSO password on https://db.debian.org/. Note that it is different from your db.debian.org password.

Copyright © 2014 Enrico Zini <enrico@debian.org>. See <u>license terms</u>. Source code is <u>here</u>.

sso.debian.org: basic information

- Project: Debian Single Sign-On
- Type: service
- Programming Language(s): Python
- Link:
 - Source code: https://salsa.debian.org/debsso-team/debsso
- Contact:
 - Enrico Zini (enrico@enricozini.org)



Debian Package Tracker

Register | Log in

This service lets you follow the evolution of Debian both with email updates and a comprehensive web interface.

Lookup package information

Enter a Debian package name:	Jump to package	Go

Other useful pages

· Browse public teams

Debian Package Tracker — Copyright 2013-2018 The Distro Tracker Developers Report problems to the tracker.debian.org pseudo-package in the Debian BTS.

Documentation — Bugs — Git Repository — Contributing

tracker.debian.org: basic information

- Project: Debian Package Tracker
- Type: service
- Programming Language(s): Python
- Link:
 - Service: https://tracker.debian.org/
 - Source code: https://salsa.debian.org/qa/distro-tracker
 - Contribution guide: https://qa.pages.debian.net/distro-tracker/contributing.html
- Contact:
 - IRC: #debian-qa (OFTC)
 - Mailing list: debian-qa@lists.debian.org

In Conclusion

Closing remarks

- Debian is one of the largest free software projects in existence.
 - A giant puzzle with several layers of smaller sub-puzzles.
 - An infinite construction toy set
- It needs your help.
- There are several other services and tools not highlighted in this talk that also need contributions.
- By contributing to Debian you will not only learn a lot, but also boost your professional career.

Outreach programs

- Paid 3-month internship on a free software project
- Debian has been participating for a long time
- Google Summer of Code
 - Eligible: University Students (undergrad+)
 - Period: Summer of the Northern hemisphere
- Outreachy
 - Eligible: Women (cis or trans), trans men, genderqueer people, or anyone who faces systematic discrimnation in the technology industry of their country.
 - Period: December-March (South), May-August (North)
- Consider applying if you are eligible

The End

Thanks for the input in preparation for this talk

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