Organization, Structure, and How To Contribute

Don Armstrong

Debian Developer

April 5th, 2012

debian

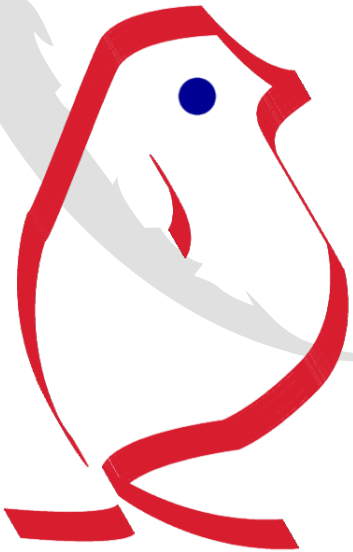
1. Debian Project History
   - Beginnings
   - Release History
   - Growth
2. Organization of Debian
   - Principles
   - Debian Social Contract
   - Constitution
   - Debian: A Do-ocracy
   - DPL/CTTE
   - Teams
   - Users
   - Derivative Distributions
3. Technical Structure
   - Policy
   - Packaging
     - Source Package
     - Binary Package
   - FTP Archive
   - Buildd
   - Release Process
   - Maintaining Quality
4. Contributing To Debian
   - Testing and Submitting Bugs
   - Fixing Bugs
   - Documentation
   - Translation
   - Additional Resources

History

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 [1]



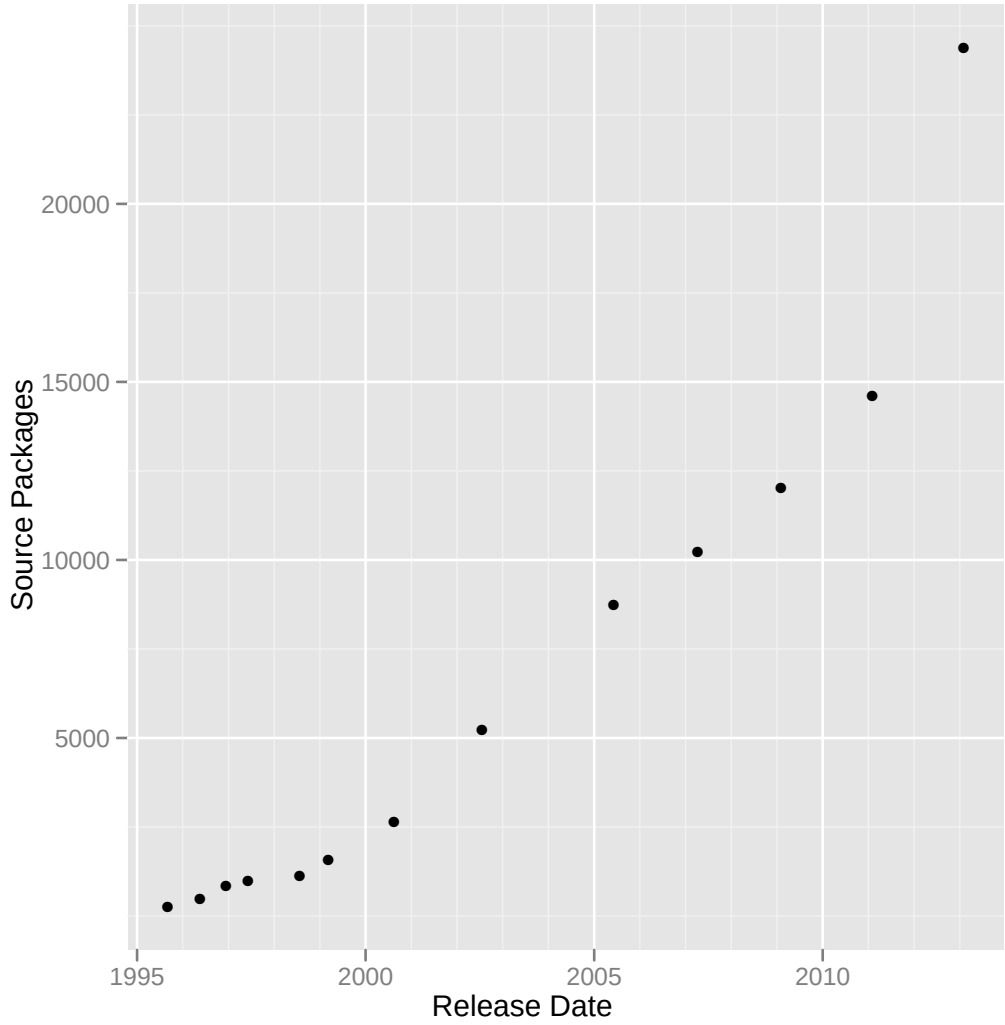
- Easy to install
- "In the spirit of GNU"
- Built collaboratively

[1] http://groups.google.com/group/comp.os.linux.development/msg/a32d4e2ef3bcdcc6?pli=1

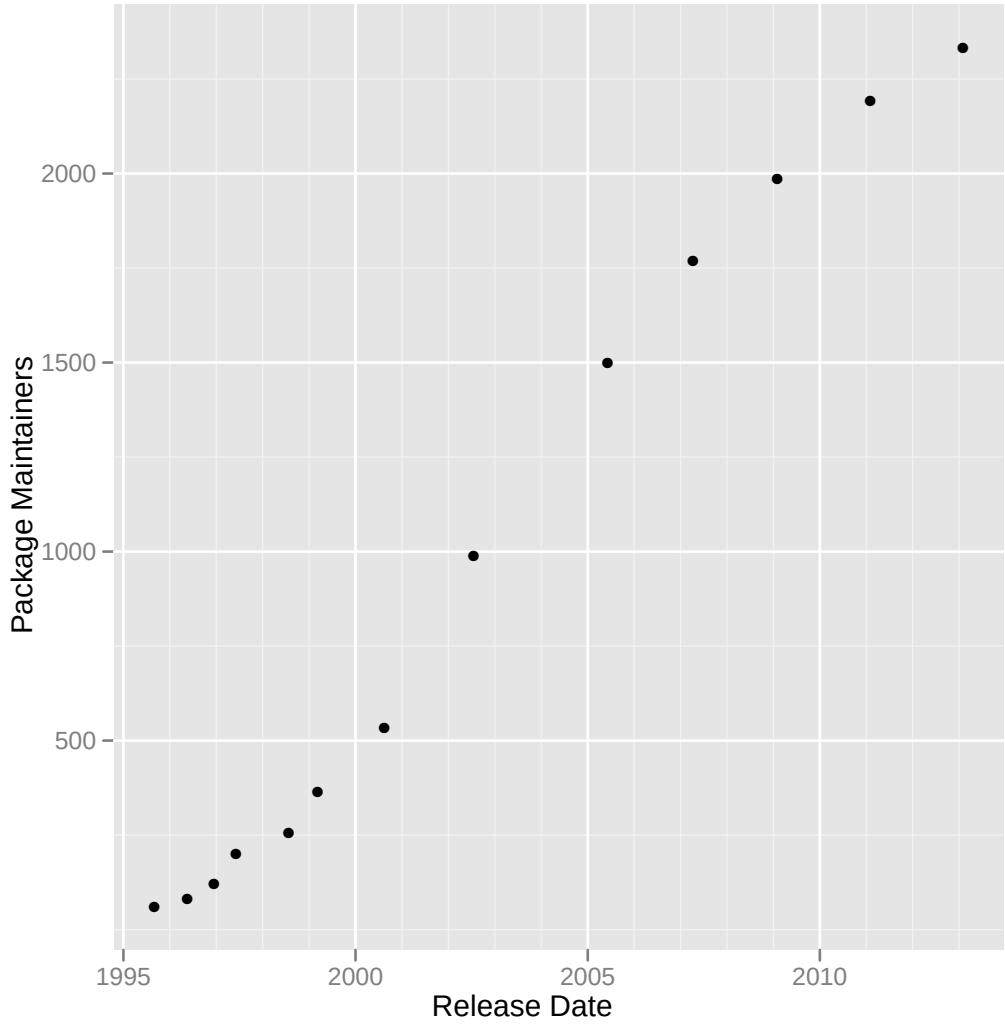
Release History

1. Buzz(1.1; 1996-03-14)
2. Rex(1.2; 1996-10-28)
3. Bo(1.3; 1997-05-01)
4. Hamm(2.0; 1998-07-24)
5. Slink(2.1; 1999-03-09)
6. Potato(2.2; 2000-08-15)
7. Woody(3.0; 2002-07-19)
8. Sarge(3.1; 2005-06-06)
9. Etch(4.0; 2007-04-08)
10. Lenny(5.0; 2009-02-14)
11. Squeeze(6.0; 2011-02-06)
12. Wheezy (??; 201?-??-??)

Growth Of Debian: Source Packages



Growth Of Debian: Maintainers



Principles

Common Goal:

Create the best, Free operating system

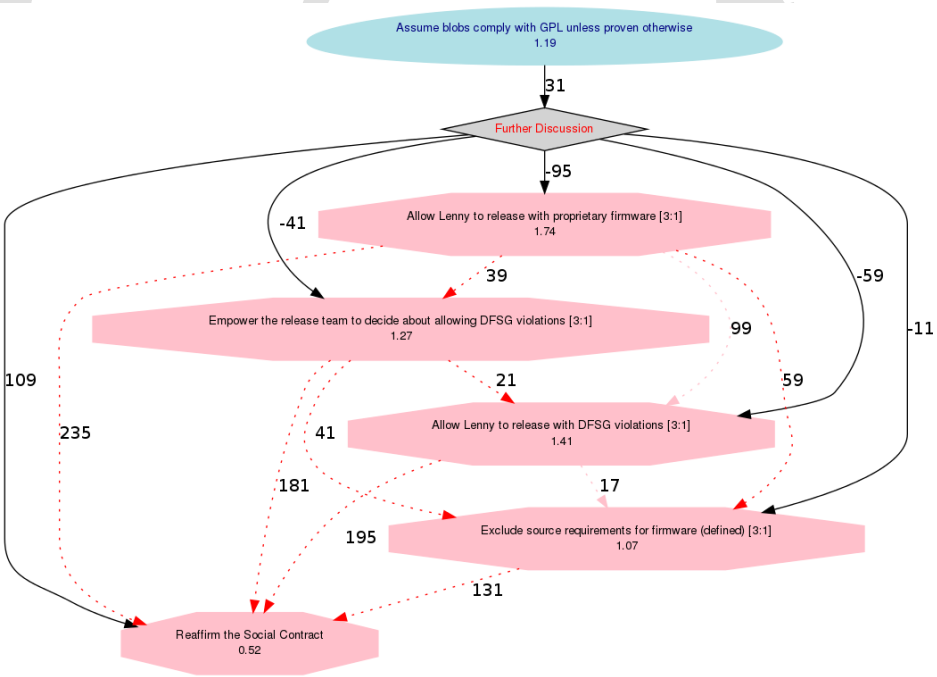
- Debian Social Contract
- Debian Constitution

Debian Social Contract

1. 100% Free (DFSG)
2. Give back to Free Software community
3. We will not hide problems
4. Users and Free Software are priority
5. Allow for non-Free software usage

`http://www.debian.org/social_contract`

Constitution



- Developers
- Secretary
- Debian Project Leader
- Technical Committee
- Voting System (Schulze Method)

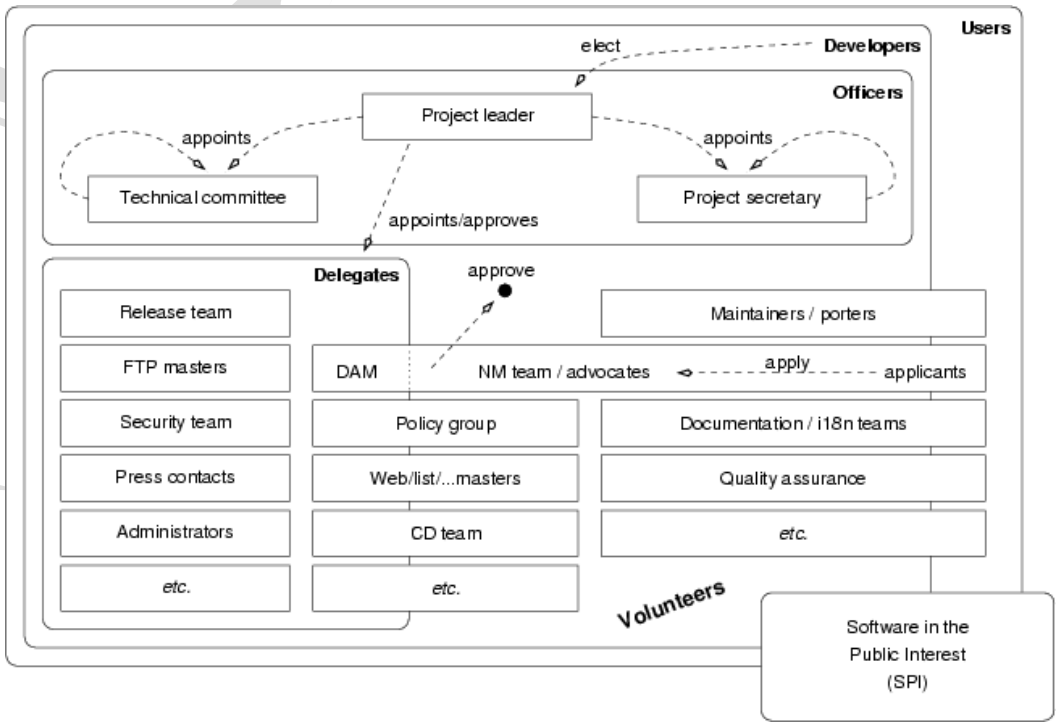
`http://www.debian.org/devel/constitution`

Maintainers

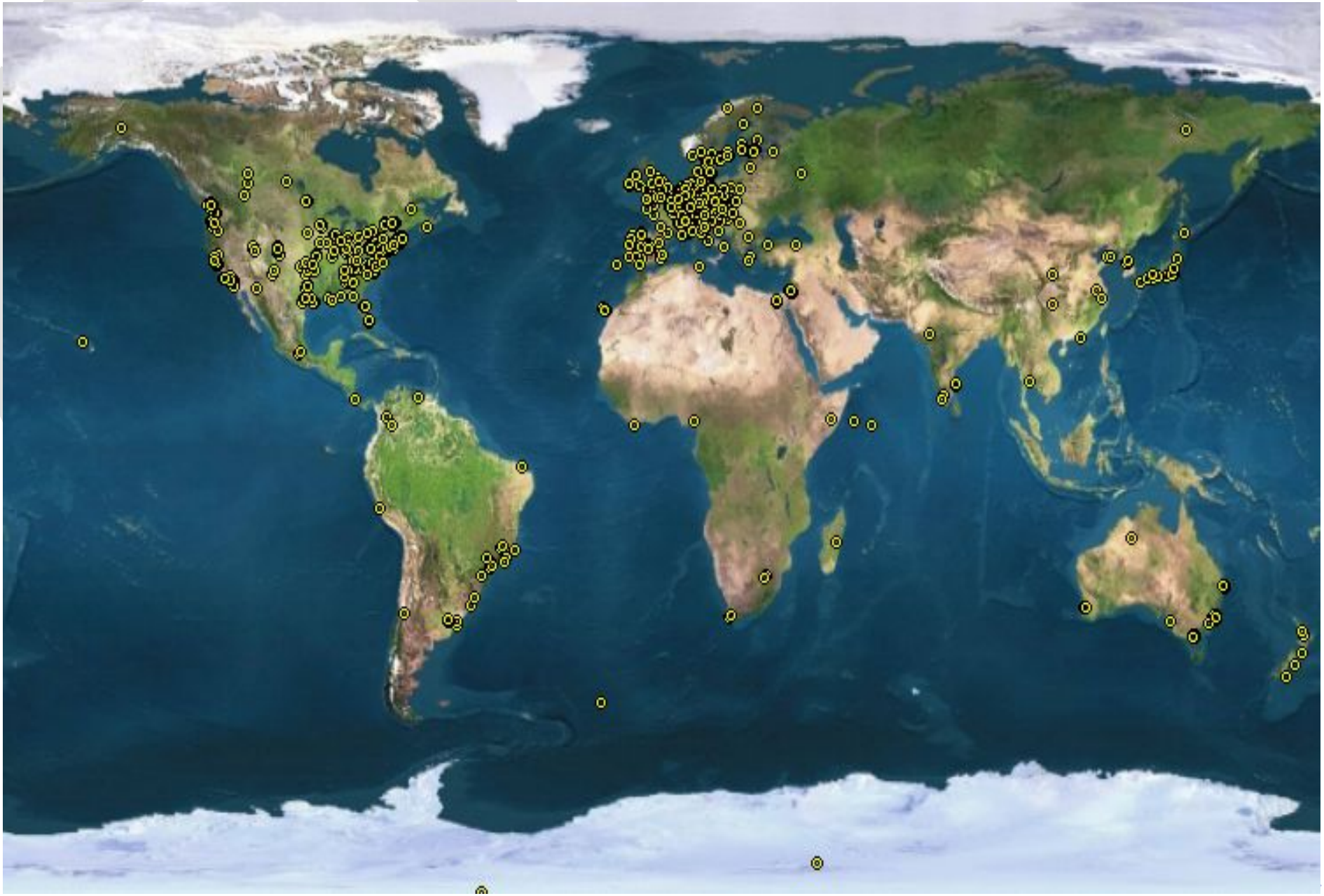
- Responsible for a package individually or as part of a team
- Packaging for Debian
- Bug Fixing, Triaging, Reporting
- Documentation

Developers

- Upload Packages
- Log into Debian machines
- Primarily responsible for Debian
- Vote



Where are Debian Developers?



Debian Project Leader

- Surprisingly Powerless
- Represents Debian
- Make decisions for areas where no one else has responsibility
- Delegate decisions

Technical Committee

- 8 Developers
- Mediation
- Dispute Resolution
- Decision body of last resort

Teams in Debian

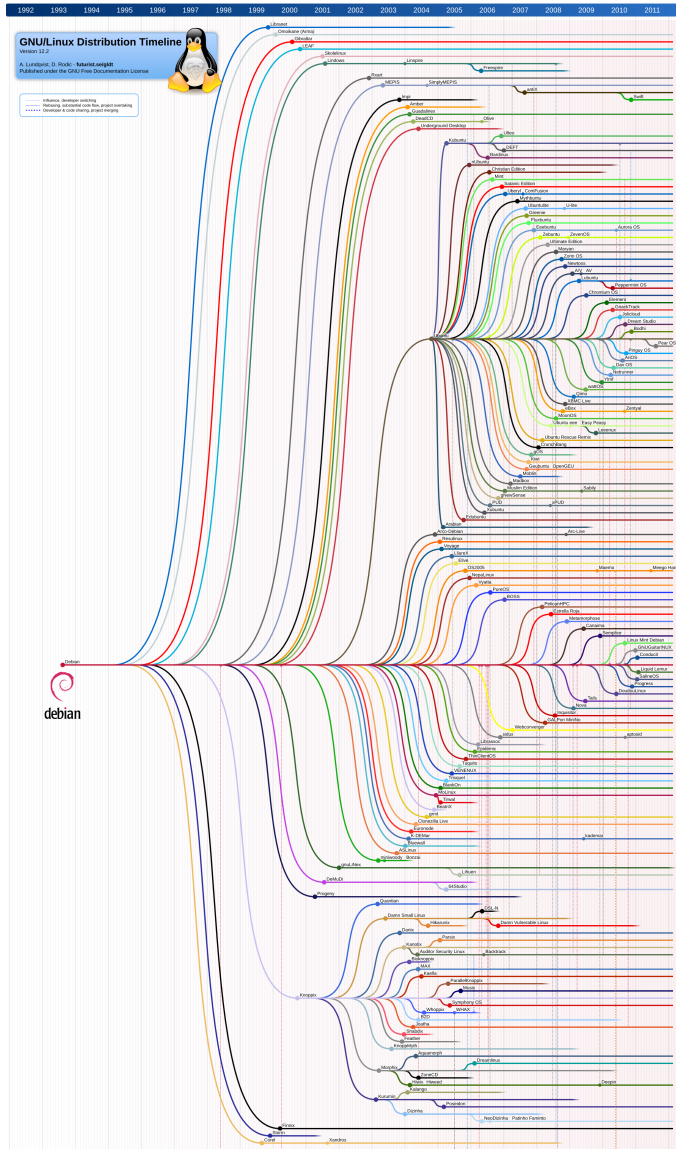
- FTP Master (ftpmaster@debian.org)
- Release Team (debian-release@lists.debian.org)
- Security Team (security@debian.org)
- Debian System Administrators (admin@debian.org)
- Bug Tracking System Team (owner@bugs.debian.org)
- Quality Assurance Team (http://qa.debian.org)
- Package Maintenance Teams

Users

- Test Debian
- Report Bugs
- Contribute Patches
- Become Developers and Maintainers
- Contribute Resources

Debian Derivatives

- Ubuntu
- Knoppix
- LMDE
- aptosid
- And more than 120 others
- `http://wiki.debian.org/Derivatives/Census`



Debian Policy

- Describes package structure
- Describes how packages must and should act
- Describes how other parts of the system will respond
- Constantly evolving
- `http://www.debian.org/doc/debian-policy/` or `/usr/share/doc/debian-policy/policy.txt.gz`

Overall Structure

When Unpacked

- debian directory
- upstream code

When Packed

- Description file .dsc
- Upstream code (.orig.tar.gz, etc.)
- Debian patches (.debian.tar.gz, diff.gz, etc.)
- dpkg-source packs source

Description File

```
-----BEGIN PGP SIGNED MESSAGE-----
Hash: SHA512

Format: 3.0 (quilt)
Source: libstatistics-r-perl
Binary: libstatistics-r-perl
Architecture: all
Version: 0.24-1
Maintainer: Don Armstrong <don@debian.org>
Homepage: http://search.cpan.org/dist/Statistics-R/
Standards-Version: 3.9.2
[...]
Vcs-Svn: svn://svn.donarmstrong.com/deb_pkgs/libstatistics-r-perl/trunk
Build-Depends: debhelper (>= 8)
Build-Depends-Indep: perl, r-base, libipc-run-perl,
 libregexp-common-perl
Package-List:
 libstatistics-r-perl deb perl optional
[...]
Checksums-Sha256:
 2605[...]11877560 29901 libstatistics-r-perl_0.24.orig.tar.gz
 8474[...]8708432a 2154 libstatistics-r-perl_0.24-1.debian.tar.gz

-----BEGIN PGP SIGNATURE-----
[...]
-----END PGP SIGNATURE-----
```

`apt-get source libstatistics-r-perl`

Control File

debian/control

```
Source: libstatistics-r-perl
Section: perl
Priority: optional
Maintainer: Don Armstrong <don@debian.org>
Build-Depends: debhelper (>= 8)
Build-Depends-Indep: perl, r-base, libipc-run-perl,
 libregexp-common-perl, libmodule-install-perl (>= 1.04)
Standards-Version: 3.9.2
Homepage: http://search.cpan.org/dist/Statistics-R/
Vcs-Svn: svn://svn.donarmstrong.com/deb_pkgs/libstatistics-r-perl/trunk
Vcs-Browser: http://websvn.donarmstrong.com/deb_pkgs/libstatistics-r-perl/trunk

Package: libstatistics-r-perl
Architecture: all
Depends: ${misc:Depends}, ${perl:Depends}, r-base, libipc-run-perl, libregexp-common-perl
Description: Control the R interpreter with perl
 Statistics::R is a module to controls the R interpreter (R project
 for statistical computing: http://www.r-project.org/). It lets you
 start R, pass commands to it and retrieve the output. A shared mode
 allow to have several instances of Statistics::R talk to the same R
 process.
 .
 The current Statistics::R implementation uses pipes (for stdin,
 stdout and stderr) to communicate with R. This implementation should
 be more efficient and reliable than that in previous version, which
 relied on reading and writing files.
```

Changelog

debian/changelog

```
libstatistics-r-perl (0.24-1) unstable; urgency=low

  * New upstream release

 -- Don Armstrong <don@debian.org>  Mon, 21 Nov 2011 16:57:20 -0800

libstatistics-r-perl (0.23-2) unstable; urgency=low

  * Update debian/copyright to reflect that that inc/* files are part of
    Module::Install.
  * Remove B-D-I: on quilt as it isn't necessary when using quilt (3.0)

 -- Don Armstrong <don@debian.org>  Mon, 14 Nov 2011 10:56:52 -0800

libstatistics-r-perl (0.23-1) unstable; urgency=low

  * Initial Release (closes: #647568)

 -- Don Armstrong <don@debian.org>  Fri, 11 Nov 2011 20:15:06 -0800
```

http://packages.debian.org/changelogs/pool/main/libs/libstatistics-r-perl/libstatistics-r-perl_0.24-1/changelog

Rules File

debian/rules

```
#!/usr/bin/make -f

%:
	dh $@
```

Or for a slightly less trivial example: `http://svn.donarmstrong.com/deb_pkgs/scowl/trunk/debian/rules` (scowl builds wamerican and other english word lists.)

Binary Package: deb

- Actual work done by dpkg-buildpackage
- Calls debian/rules binary
- Generates changes, debian packages
- Physically an ar archive with three members; see deb(5) for more details
  - debian-binary
  - control.tar.gz
  - data.tar (optionally compressed)

Utilities

- debhelper
- uscan (`debian/watch`)
- git-buildpackage, svn-buildpackage, dpkg-buildpackage
- cowbuilder

Uploading Packages

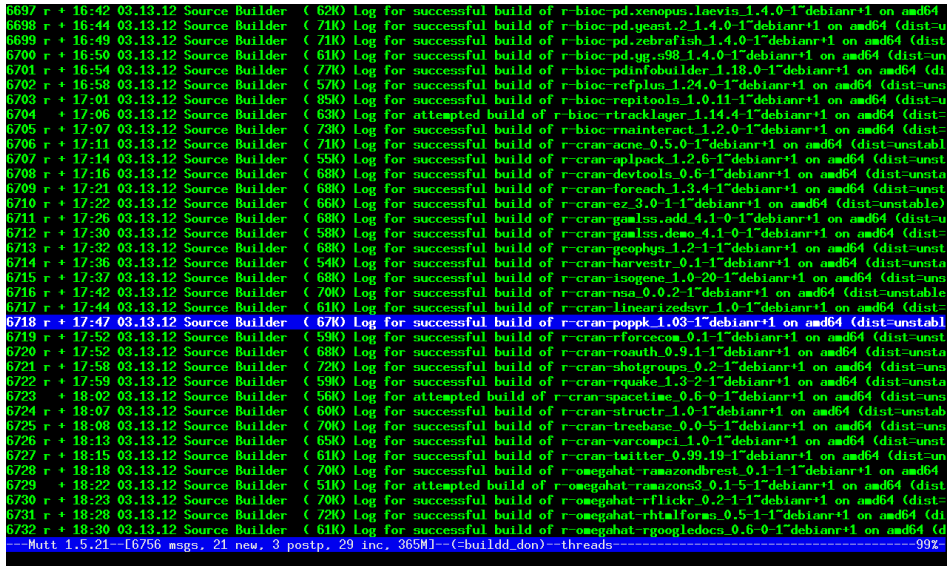
- Upload source package and binary
- Signed with DD (or DM) GPG Key
- Using debsign and dput
- Suite Target
- Delay Queue

Security and Backend Software

- Every Source/Binary Package SHA256/SHA1/MD5 Sumed
- Hashes GPG Signed
- Checked by DAK
  - Postgresql Database
  - Python and Shell scripts
- Builds Archive Files
  - Source
  - Packages
  - Contents
- Mirror scripts

Building for other architectures

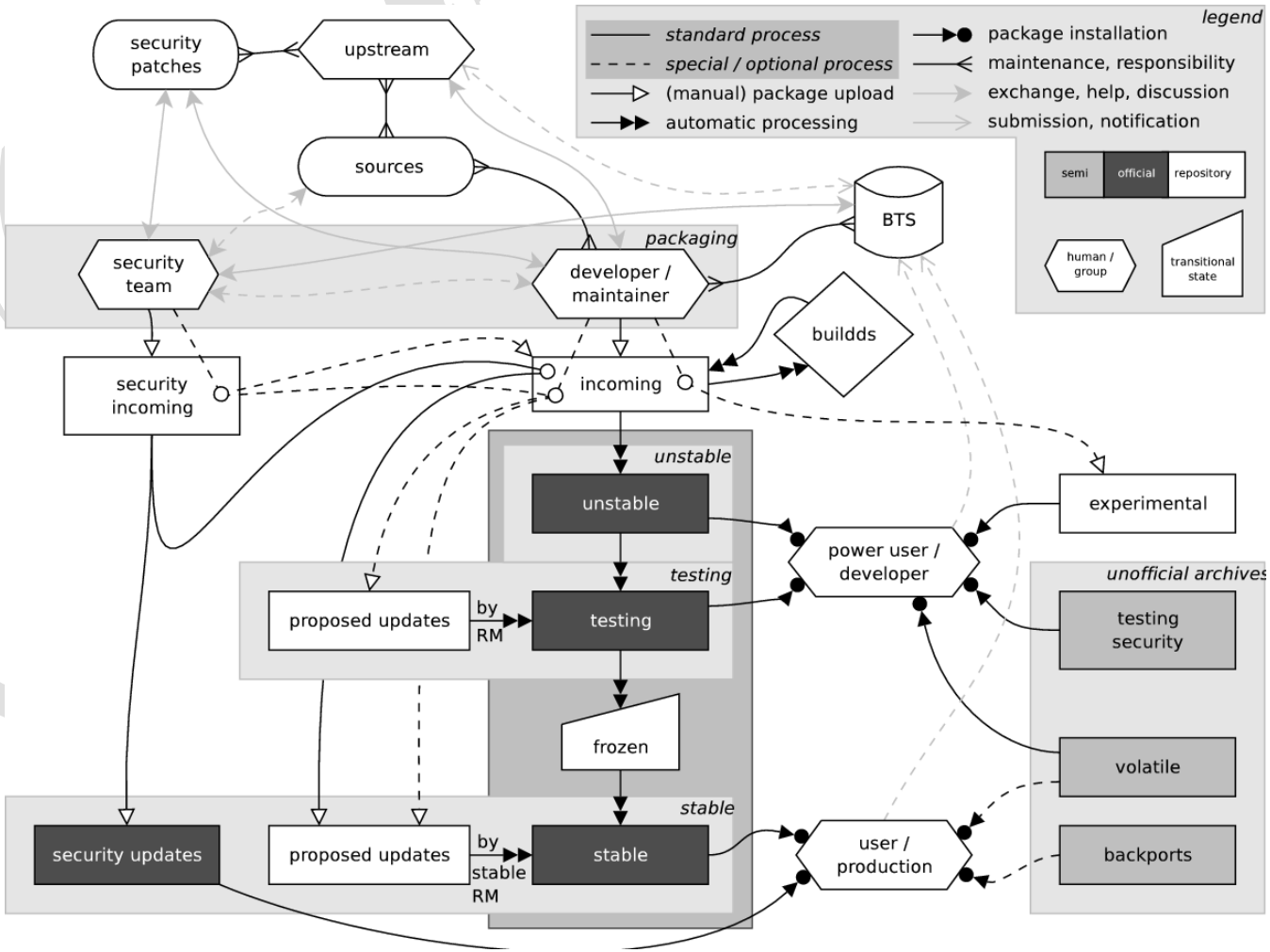
- wanna-build (database of packages to build)
  - Comparison of Source and Binary packages
  - Packages can be ignored
- buildd
  - Selects package from wanna-build to build
  - Calls sbuild to build
  - Sends logs to buildd maintainer
  - Receives signed dsc and uploads package
- sbuild
- Logs Examined
- Uploaded by DD



Release Goals

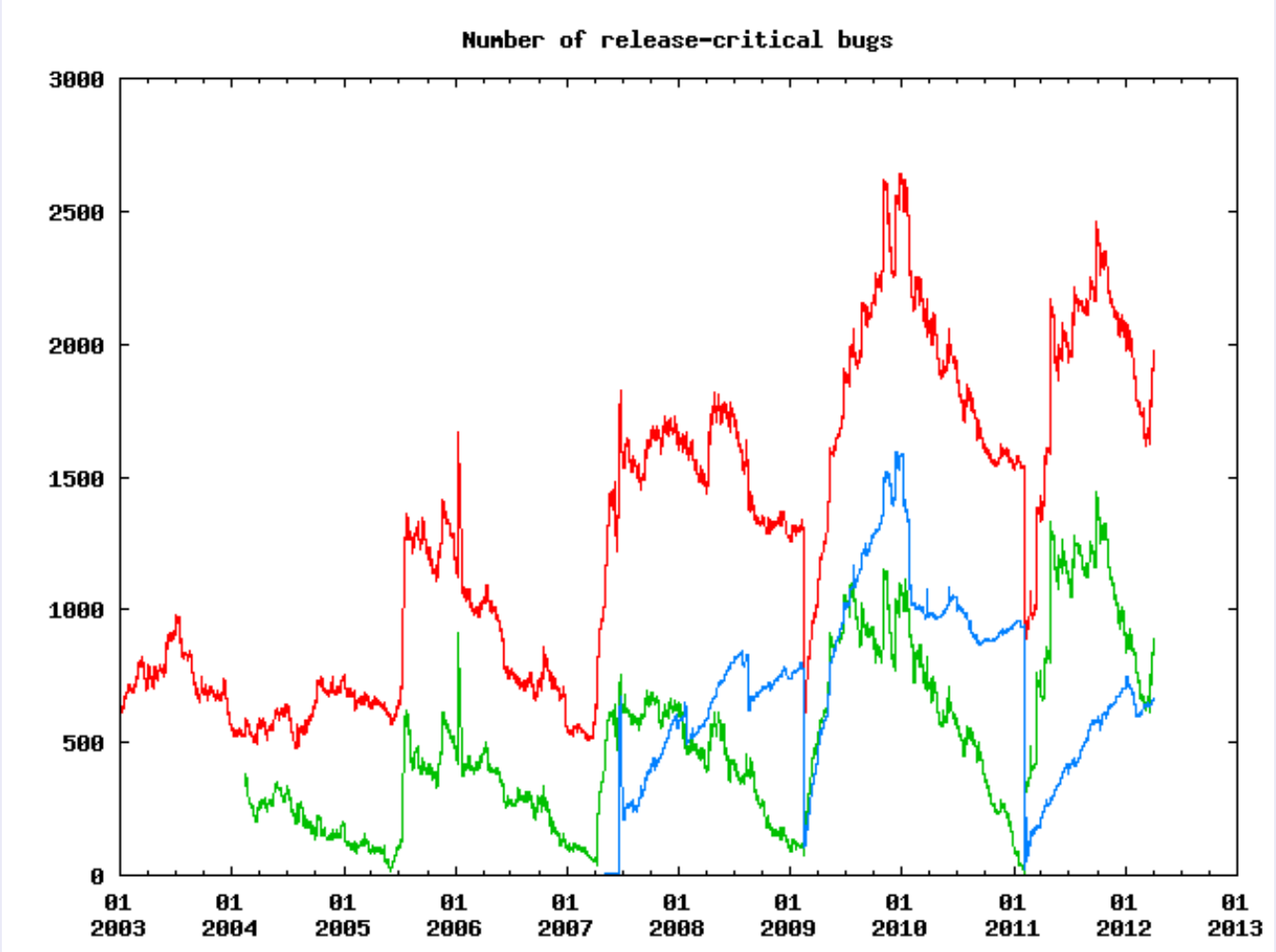
- A set of goals which will be met to release
- `http://release.debian.org/wheezy/goals.txt`
- Current Goals
  - Multiarch
  - kFreeBSD
  - Package Quality
  - Large File Support
- Candidates
  - DNSSec
  - selinux EAL-4

Testing Propogation

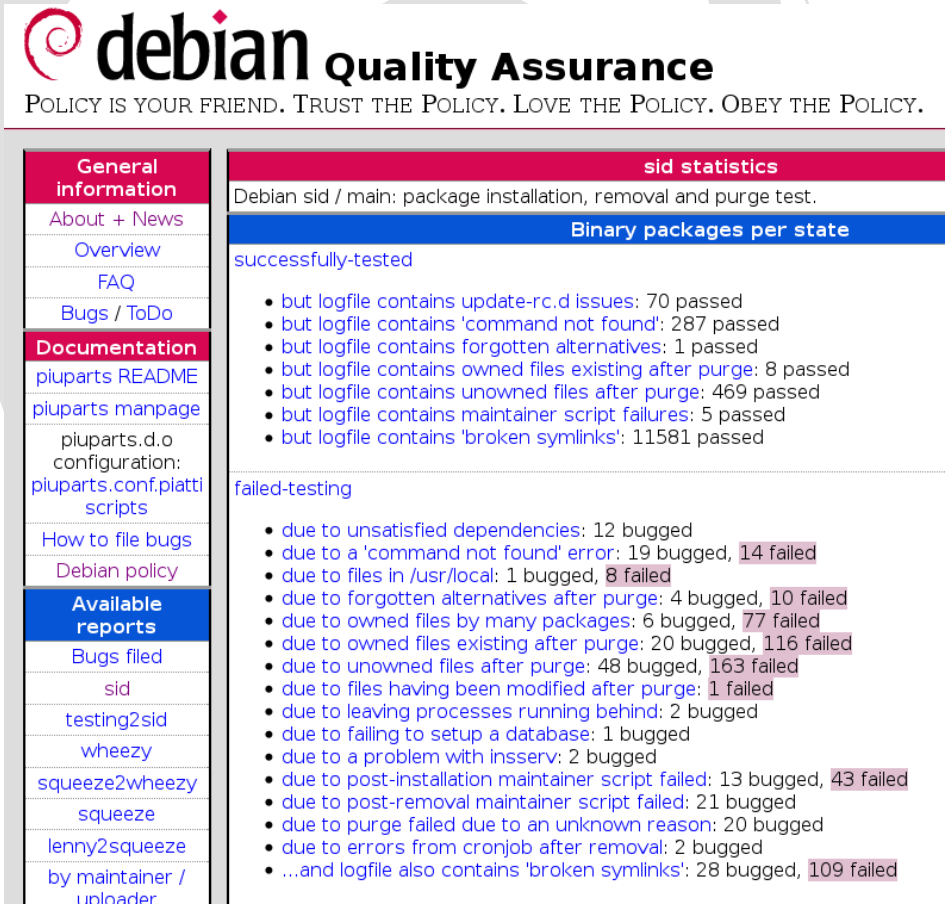


When Does Debian Release

Only When Ready



Maintaining Packaging Quality



debian Quality Assurance

POLICY IS YOUR FRIEND. TRUST THE POLICY. LOVE THE POLICY. OBEY THE POLICY.

General information
- About + News
- Overview
- FAQ
- Bugs / ToDo

Documentation
- piuparts README
- piuparts manpage
- piuparts.d.o configuration: piuparts.conf.piatti scripts
- How to file bugs
- Debian policy

Available reports
- Bugs filed
- sid
- testing2sid
- wheezy
- squeeze2wheezy
- squeeze
- lenny2squeeze
- by maintainer / uploader

sid statistics

Debian sid / main: package installation, removal and purge test.

Binary packages per state

successfully-tested

- but logfile contains update-rc.d issues: 70 passed
- but logfile contains 'command not found': 287 passed
- but logfile contains forgotten alternatives: 1 passed
- but logfile contains owned files existing after purge: 8 passed
- but logfile contains unowned files after purge: 469 passed
- but logfile contains maintainer script failures: 5 passed
- but logfile contains 'broken symlinks': 11581 passed

failed-testing

- due to unsatisfied dependencies: 12 bugged
- due to a 'command not found' error: 19 bugged, 14 failed
- due to files in /usr/local: 1 bugged, 8 failed
- due to forgotten alternatives after purge: 4 bugged, 10 failed
- due to owned files by many packages: 6 bugged, 77 failed
- due to owned files existing after purge: 20 bugged, 116 failed
- due to unowned files after purge: 48 bugged, 163 failed
- due to files having been modified after purge: 1 failed
- due to leaving processes running behind: 2 bugged
- due to failing to setup a database: 1 bugged
- due to a problem with insserv: 2 bugged
- due to post-installation maintainer script failed: 13 bugged, 43 failed
- due to post-removal maintainer script failed: 21 bugged
- due to purge failed due to an unknown reason: 20 bugged
- due to errors from cronjob after removal: 2 bugged
- ...and logfile also contains 'broken symlinks': 28 bugged, 109 failed

- Full Archive Rebuilds
- lintian
- piuparts
- Automatically testing packages (In progress; autopkgtest)
- Users Filing Bugs

How to submit bugs

- Run reportbug
- Mail to submit@bugs.debian.org
- Version and debugging information
- Check for existing bugs first

Message #5 received at submit@bugs.debian.org (full text, mbox):

From: "Bao Haojun" <baohaojun@gmail.com>
To: Debian Bug Tracking System <submit@bugs.debian.org>
Subject: devscripts: FilesToPackages return nil for dpkg output pattern changed
Date: Thu, 05 Apr 2012 10:11:54 +0800

```
Package: devscripts
Version: 2.11.6
Severity: important

Dear Maintainer,

When I run dpkg-depcheck on beagrep
(https://github.com/baohaojun/beagrep) compilation:

    dpkg-depcheck -b bash -c 'autoreconf -i; ./configure; make -j8'

It reports that none of the files used are found in any packages. After
a little debugging, I found the
/usr/share/devscripts/Devscripts/Packages.pm need to be updated because
"dpkg -S" output pattern has been updated:

        elsif (/^dpkg: \Q$curfile\E not found\.$/) {
            $curfile = shift;
        }

should be updated to:

        elsif (/^dpkg: \Q$curfile\E not found\.$/) {
            $curfile = shift;
        } elsif (/^dpkg-query: no path found matching pattern \Q$curfile\E\.$/) {
            $curfile = shift;
        }

-- Package-specific info:
```

Finding Bugs To Fix

- UDD: http://udd.debian.org/bugs.cgi
- http://bugs.debian.org/release-critical
- Bug Tracking System

bug#	package	
#147832	xchat	xchat: loses server list if disk fills up
#197254	isdnutils-base	isdnutils-base: /etc/isdn/isdn.conf ove
#314555	dvd+rw-tools	dvd+rw-tools: growisofs fails on large
#331116	isdnlog	isdnlog: fails to purge
#332227	parted	yaboot-installer: install fail on open po
#340479	libgdbm3	noffle: problems with largefile limit
#345055	lua50	lua50 can't read large files
#350619	libneon27-dev	libneon24-dev: should be built with -D
#476946	dbconfig-common	dbconfig-common does not honor pr
#478544	icedove	[icedove] "Size" in folder listing disapp
#478545	alpine	[alpine] alpine does not support large
#478549	ipopd	[ipopd] Ipopd does not support mailb
#483217	texlive-latex-base	texlive-latex-base: Files by Donald Ars
#493956	w3m	w3m can't download files larger than
#538822	dash	dash fails to upgrade if /bin/sh is locall
#540512	dash	dash upgrade breaks mksh-as-/bin/sh
#555168	locales	Many locales files do not permit modif
#558784	apt	apt: re-adds removed keys
#570516	mdadm	mdadm: UUID changed upon upgrade
#571634	xen-utils-common	xen-utils-common vif-common.sh still
#579522	tasksel	tasksel - Removes packages without
#583867	finger	[finger] cannot handle inbox larger th
#587650	git-svn	git svn: copes poorly with .git/svn dir
#590147	akregator	akregator crashes at start
#590884	grub-pc	grub-pc: upgrading with vmlinuz-2.6.3
#591199	src:yui	yui: does not build swf files from sour
#591969	src:typo3-src	typo3-src: does not build .swf files fr
#593139	src:ruby1.9.1	ruby1.9.1: FTBFS on kfreebsd: test su
#593141	src:ruby1.9.1	ruby1.9.1: FTBFS on ia64: test suite s
#594447	libapp-varbin-header-perl	Proposed RM for squeeze+1: libapp-v

Fixing #661628

- #661628: libnss-ldap: fails to configure: tries to run /etc/init.d/nscd but /etc/init.d/unscd is the one that actually exists
- Get source `apt-get source libnss-ldap`

Allow for unscd

```
--- libnss-ldap-264/debian/libnss-ldap.postinst
+++ libnss-ldap-264/debian/libnss-ldap.postinst

 if [ -s /usr/sbin/nscd ]; then
       if [ `pidof -s nscd` ]; then
+          # allow for unscd as well
+          for nscd in unscd nscd; do
+              if [ -x /etc/init.d/$nscd ]; then
               if which invoke-rc.d >/dev/null 2>&1; th
-                  invoke-rc.d nscd restart
+                  invoke-rc.d $nscd restart
               else
-                  /etc/init.d/nscd restart
+                  /etc/init.d/$nscd restart
               fi
+                  break;
+              fi;
       fi
 fi
```

Fixing #661628

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+           # allow for unscd as well
+           for nscd in unscd nscd; do
+               if [ -x /etc/init.d/$nscd ]; then
                    if which invoke-rc.d >/dev/null 2>&1; th
-                       invoke-rc.d nscd restart
+                       invoke-rc.d $nscd restart
                    else
-                       /etc/init.d/nscd restart
+                       /etc/init.d/$nscd restart
                    fi
+                   break;
+               fi;
        fi
 fi
```

Fixing #661628 Cont.

- Document fix with `dch -i --nmu`
- Build source package with `dpkg-source -i -b`
- Test fix
  - Build package
  - Install unscd, install package
- Send patch to BTS
- If you are a DD, consider NMUing

Mail to 661628@bugs.debian.org and control@bugs.debian.org

tag 661628 patch
thanks
Attached, please find a patch which checks for /etc/init.d/unscd and uses the first init script it finds. [It may actually be better for the postinst to call nscd --invalidate passwd --invalidate group --invalidate hosts instead.]

Fixing #661628 Cont.

- Document fix with `dch -i --nmu`
- Build source package with `dpkg-source -i -b`
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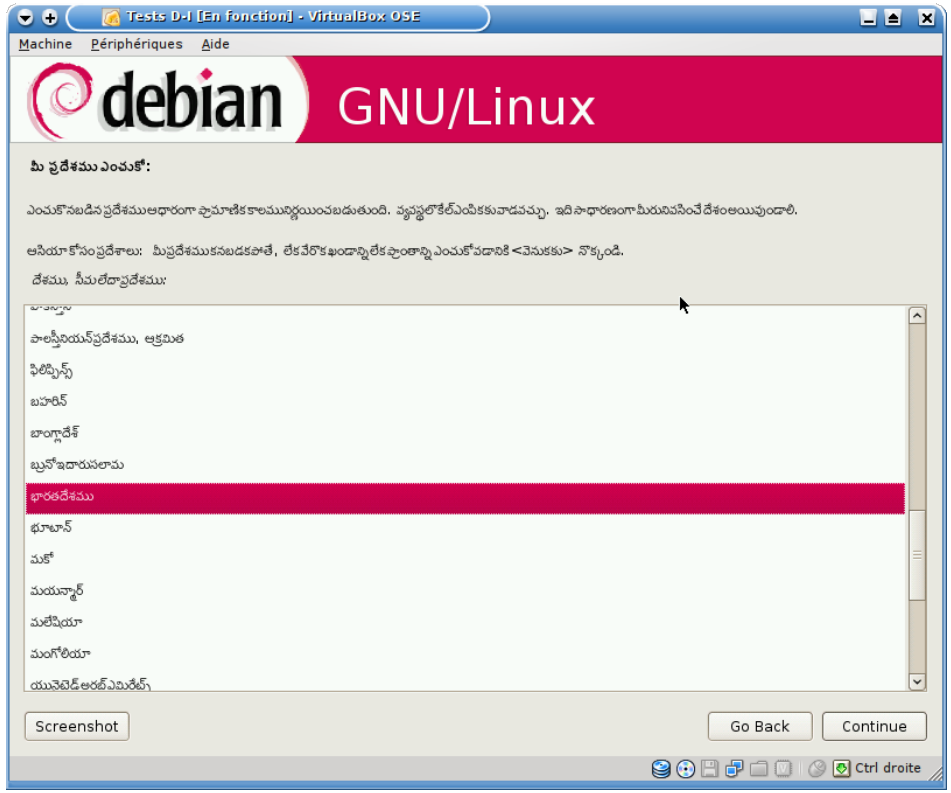
Documentation

- Website (debian-www@lists.debian.org)
- Debian Project News (debian-publicity@lists.debian.org)
- Manpages
- Wiki `http://wiki.debian.org`

Translation

- Packages (primarily upstream)
- Descriptions
  `http://www.debian.org/international/l10n/ddtp`
- Website
  `http://www.debian.org`
- Installer `http://d-i.debian.org/l10n-stats/`



- Mailing Lists
  - `debian-user@lists.debian.org`
- IRC
  - #debian on `irc.debian.org` (OFTC) and `irc.freenode.net`
- Books
  - *The Debian System* by Martin Krafft; *Debian Bible*
- LUGs
  - Southern California Debian `scd.debian.org`
- Debian Consultants
  - `http://debian.org/consultants`
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- Debian Developers

Questions

DebConf10
New York City
DebConf: being way too awesome for more than 10 years.