Debian: Why? How?

Don Armstrong

Introduction

Why?

How?

What's next?

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1. Introduction
   - A brief history of time
2. Why?
   - Social Contract
   - Policy
   - libapt and dpkg
3. How?
   - A package's journey
4. What's next?

In the beginning...

- 13 years ago tomorrow Ian Murdock anounced Debian
- From 1 developer to > 1,000
- Toy Story releases; from “buzz” to “sarge”
- “etch” next

Why should I use Debian?

- Stable
- Production tested
- Social Contract
- Policy
- Maintainers
- Packaging

A social contract[1] with our users

- 100% Free
- Give back to the Free Software Community
- We won't hide problems
- Our users and Free Software are our priorities
- (Limited) support for non-free software

[1] /usr/share/doc/debian/social-contract.txt

How packages must behave[2]

- A codification of requirements for packages
- Must and should directives
- Documents practice
- Packages that violate a "must" directive are buggy and will not be included in a release

[2] /usr/share/doc/debian-policy/policy.txt.gz

Debian Packages

- Packages installed by dpkg
- Responsible for doing the right thing to packages
  - Handling files in packages
  - Running scripts attached to the packages
  - Handling conflicts/assuring dependencies are resolved
- An ar archive with three parts, two of which are tarballs[3]

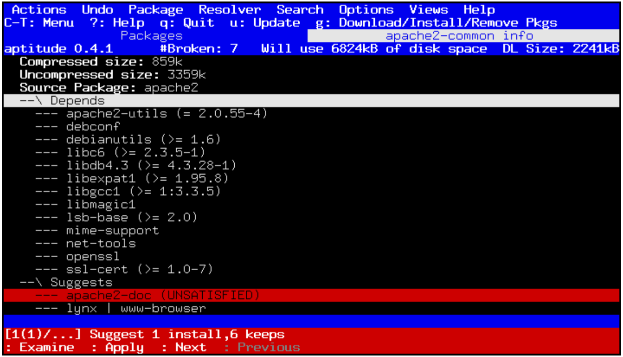
[3] deb(5)

The library demo that came to rule the world

- libapt
- Downloading packages, list of available packages
- Traversal of dependency graphs
- Resolution of dependency problems
- Invokes dpkg to actually do stuff to packages

Frontends to libapt

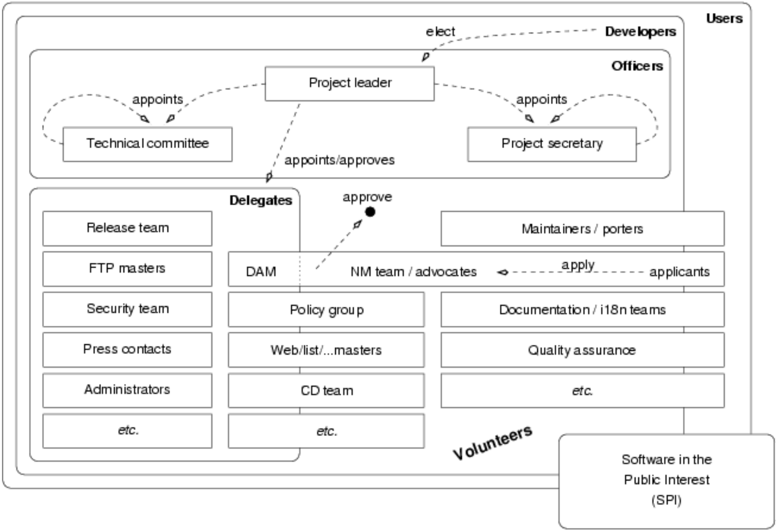
- apt-get
- aptitude
- synaptic
- gnome-apt



```
 Actions  Undo  Package  Resolver  Search  Options  Views  Help
C-T: Menu  ?: Help  q: Quit  u: Update  g: Download/Install/Remove Pkgs
                 Packages                      apache2-common info
aptitude 0.4.1      #Broken: 7   Will use 6824kB of disk space  DL Size: 2241kB
  Compressed size: 859k
  Uncompressed size: 3359k
  Source Package: apache2
  --\ Depends
    --- apache2-utils (= 2.0.55-4)
    --- debconf
    --- debianutils (>= 1.6)
    --- libc6 (>= 2.3.5-1)
    --- libdb4.3 (>= 4.3.28-1)
    --- libexpat1 (>= 1.95.8)
    --- libgcc1 (>= 1:3.3.5)
    --- libmagic1
    --- lsb-base (>= 2.0)
    --- mime-support
    --- net-tools
    --- openssl
    --- ssl-cert (>= 1.0-7)
  --\ Suggests
    --- apache2-doc (UNSATISFIED)
    --- lynx | www-browser

[1(1)/...] Suggest 1 install,6 keeps
: Examine  : Apply  : Next  : Previous
```

Organization Overview



How does Debian actually do it?

- Lots and lots and lots of Magick
- Policy
- Automated tools
- shlibdebs
- BTS
- lintian
- pbuilder
- Suites (stable, testing, unstable, experimental, oldstable)

Our package's journey begins

- Someone decides they want to package it (Class::Modular)
- Files an ITP (more on this later)
- Creates a Debian package (`dh-make-perl --cpan Class::Modular`)
- Builds the package (pbuilder)
- Tests the package (lintian, piuparts)
- Signs the changes and .dsc file
- Uploads the package to the archive (or a sponsor does it)

Creating the package

- dh-make-perl (we'll cheat) or dh_make
  - Creates the `debian` directory with `rules`, `control`, `changelog`, ...
- New Maintainer Guide, policy and existing documentation for less trivial packages

Building the package (with pbuilder)

- Automatically downloads package build dependencies in a chroot
- Builds the package in a chroot
- cleans up the chroot when done (deletes it)
- Has neat hook scripts and other stuff
- dpkg-shlibdeps

Testing the package

- Actually use the package
- piuparts
- lintian
- linda

People can see our package in unstable

- Package is accepted by ftpmaster (NEW processing)[4]
- Mirror pulse; people apt-get update; and apt-get install libclass-modular-perl;
- People running unstable now can use our package
- People report bugs

[4] `http://ftp-master.debian.org/`

Reporting Bugs in Debian

- Bugs are reported to a publicly viewable bug tracking system (bugs.debian.org)
- reportbug or your MUA can be used to easily report bugs
- submitted bugs are assigned to a package
- Maintainer notified and communicates with submitter
- Bugs fixed

Angst Technology by Barry T. Smith
YOU HAVE DISHONORED ME FOR TOO LONG.
EVEN THOUGH FOR EVERY ONE OF YOU I STRIKE DOWN, ANOTHER TWO MAY TAKE HIS PLACE...
... I WILL KILL YOU ALL!
AAAAAAAAAAAAAA
DEBUGGING IS A STATE OF MIND.
WWW.INKTANK.COM © 2000 BARRY T. SMITH

Our package moves on to testing

- After 10 (low), 5 (medium) or 2 (high) days, our package is eligible to move to testing
- The package migrates IFF
  1. Can be installed in testing
  2. Has fewer RC bugs[5] than testing version
- More eople use our package, file more bugs, more bugs are fixed
- Uploads to unstable continue on while this is occuring

[5] Severity ≥ serious

A major debian server burns, and Debian releases

- If our package is in testing (we were good maintainers) it gets promoted to stable when testing is promoted.
- Stable and testing are actually symlinks
- Currently stable points at sarge, and testing points at etch
- Releasing just means mv stable oldstable; mv testing stable; and creation of a new testing codename.

The stable story: Security

- Security bugs – security-team and DSA
- Serious bugs – stable-proposed-updates
- Stable Updates (3.1r2)
- End of life: oldstable and archive.debian.org

What's next for etch?

- Graphical Installer (d-i!)
- Single Kernel
- Faster (?!) release cycle
- New packages
- Modular xorg
- udev everywhere

What else is happening in Debian-land?

- GPLv3[6], CC, other licenses
- Debconf videos online[7]
- BTS searching[8] and version tracking
- Website
- Debian Women[9]
- Minor changes to the constitution

[6] http://gplv3.fsf.org

[7] http://meetings-archive.debian.net/pub/debian-meetings/

[8] http://merkel.debian.org/~don/cgi-bin/search.cgi

[9] http://women.debian.org

Questions?

Some packages you may have missed

- cron-apt
- aptitude
- devtools
- devtodo
- apt-file
- popcon[10]

[10] http://popcon.debian.org