Ubuntu Development Primer

How to stop monkey patching and start committing

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Topics

- Getting support

- Launchpad

- Modifying Sources

- Building

- Submitting changes

- The Kernel

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Me.

- Dave Chiluk
- Canonical Employee for 3.5 years supporting Users through Ubuntu Advantage
- Ubuntu Contributing Developer
- Honorary Kernel team member.
- Working toward Masters of the Universe, and Core Dev.
- Long time linux evangelist
- https://wiki.ubuntu.com/chiluk

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Why you should care?

- You have self-maintained packages.

- You want to give back, but don't know where to start.

- You had to fix something for yourself, and don't want to have to re-fix it every time you upgrade.

- Mentorship beats reading wiki pages
  (but there will still be plenty of pages)

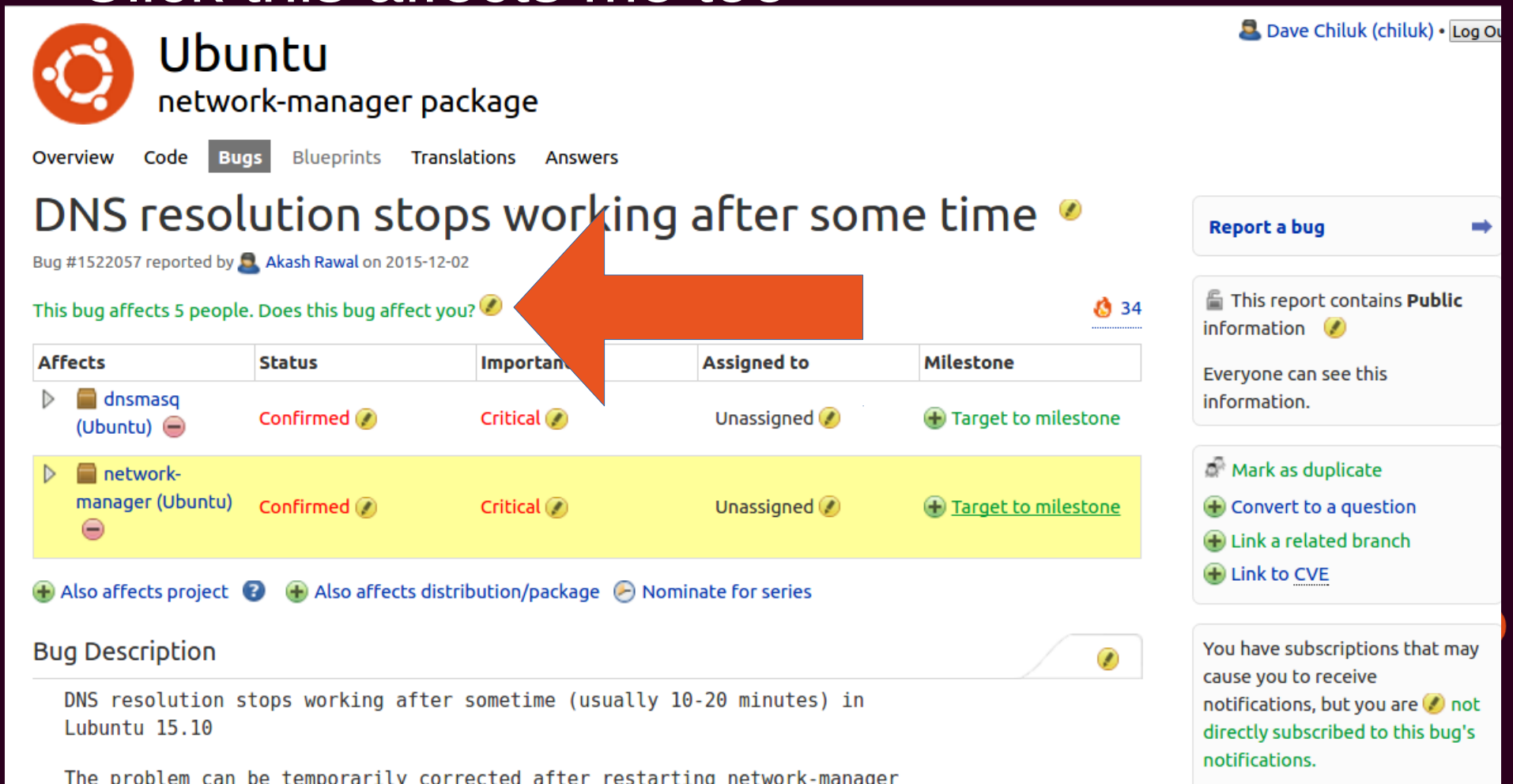- Outdated documentation

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Where do you go for support?

Where do you go for support?

- google.com

- askubuntu.com

- ubuntuforums.org

- Ubuntu Advantage

- IRC – Freenode

  – #ubuntu – General User support

  – #ubuntu-devel – For development assistance, such as patching

  – #ubuntu-bugs –

- Launchpad

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Launchpad.net

- So you found your bug on launchpad?

- Click this affects me too

Launchpad.net

- Subscribe yourself

Launchpad.net

- Assign yourself if you have a fix.

Launchpad.net

- All of these result in Karma.

There's no related bug?

- Create one using
  - ubuntu-bug <source package name>
  - This will package up a number of logs, and

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New bugs

- Have you included related logs?

- Have you included debug output from the command being run (--verbose or --debug flags)

- Did you include a dump?

- Is your package up to date?

- Have you tested the development release?
  - Bisect/backport if it's fixed there.

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Fix it

- Check upstream?
  - If fixed - Backport the change
  - If not – Fix it and upstream the patch

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Getting sources

- Get the tools
  - $ sudo apt install sbuild debhelper ubuntu-dev-tools devscripts build-essential fakeroot kernel-wedge kernel-package dpatch quilt

- rmadison <source package name>
  - Shows the version of the package in every supported version of Ubuntu

- mkdir bash

- pull-lp-source bash xenial

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The debian directory

- changelog

- rules

- control – package definition, including depends, build-depends, recommends, and replaces.

- patches/
  - Patches because Ubuntu is a delta merged with debian, and this helps when new versions need to be brought into Ubuntu
  - This could be improved

- patches/series

- $ what-patch

- https://wiki.debian.org/Packaging

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Package the patch

- Make changes

- dch -i # Modify the changelog

- dpkg-source --commit
  - will create the patch for you
  - will bring up an interface to request that you fill out a dep3 formatted template for the change
  - Fill out the appropriate fields and information.
  - This will allow your patch to be more readily acceptable to debian.

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Package the patch - quilt

- quilt status
  - What is the current patch we are at
- quilt push -a
  - applies all patches
- quilt new
  - Create a new quilt patch
- quilt add <filename>
  - Tell quilt to start monitoring a file for changes
- patch -p1 < patch
  - patches the files
- quilt refresh
- quilt header -e –dep3
- quilt pop -a
  - removes all patches

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Edit the Changelog

- dch -i
  - adds a changelog entry
  - Include description and LP#
  - Follow format of other changes in the changelog

- Double check that patch is listed in debian/patches/series

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Build the source package

- debuild -S

Build the binary package

- sbuild -A -d xenial-amd64 <new.dsc>

  - https://wiki.ubuntu.com/SimpleSbuild

- debdiff <orig.dsc> <new.dsc> >
  lp#.<series>.debdiff

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Test the Package

- YES YOU!

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Submit the change

- Attach the debdiff to the launchpad bug

- Is the patch for a released series?

  - Fill out the SRU Template

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Stable Release Updates (SRU)

- https://wiki.ubuntu.com/StableReleaseUpdates

- Copy the SRU Template to the top of the bug description and fill it out.

- Helps reviewers understand what's going on without having to wade through the entirety of the bug text

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The archives

- Get Sponsorship – Core dev
  - Wait, Eventually someone will come along from ubuntu-sponsors
  - Ask on #ubuntu-devel
- Get SRU Sponsorship – SRU Team member
- Package is built by launchpad and added to the -proposed archive

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Test it again!

- In addition to integration and build testing

- The original submitter is expected to test the package as it exists in -proposed.

- Then add verification-done tag on launchpad

- Wait 2-6 weeks for promotion to -updates

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Submit to Debian

- There's a tool for that too!
  - submittodebian
- Why?
  - Because we want to be good members of the Debian community,
  - We don't want to have to maintain the delta indefinitely.

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The Kernel

- git clone git://kernel.ubuntu.com/ubuntu/ubuntu-xenial.git

- http://kernel.ubuntu.com/

- Git Branches
  - master
  - master-next – kernel in -proposed being tested.

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Building the kernel

- make
  - make oldconfig ; make
  - for quick iteration
  - Not recommended
- alias fdr='fakeroot debian/rules' to ~/.bashrc
- $ fdr prepare-generic
  - creates config
- $ fdr binary-generic
  - when you want to build full debs

For New fixes

- Submit to Upstream Kernel

- Documentation/SubmittingPatches

- Then submit to linux-stable

- Rare occurence

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Cherrypicks of Upstream patches

- Test Upstream
  - **https://wiki.ubuntu.com/Kernel/MainlineBuilds**
  - **http://kernel.ubuntu.com/~kernel-ppa/mainline/**
- git bisect to find correct upstream commit.
- git cherry-pick -sex <upstream commit>
- Submit the cherry-picks to linux-stable
  - Documentation/stable_kernel_rules.txt
- This will eventually get included into Ubuntu via linux-stable patch streams
- Consider running an linux-image-generic-lts- kernel.

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Other fixes

- Sometimes patches are not accepted by stable, but are still needed in Ubuntu

- Submit to kernel-team@lists.ubuntu.com

- Follow patch submission guidelines
  - https://wiki.ubuntu.com/Kernel/Dev/KernelBugFixing

- Buy a kernel team member some beer.

ONE DOES NOT SIMPLY

DRINK JUST ONE BEER

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Questions please

Thank you

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