



# The state of curl in Debian

The past, the present and the future

Carlos Henrique Lima Melara (Charles)  
2026-05-23

Slides available at  
[people.debian.org/~charles/talks/](https://people.debian.org/~charles/talks/)



# Agenda

i.e. what we are talking about today

1. Introductions
2. curl in Debian
3. Package Tests
4. RC Releases
5. Experimental Features
6. Switch SSL Backend
7. Debian's QA Tools
8. Building curl in Debian

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**Who Am I?**

# Charles

- Computer Engineer
  - [Ganesh](#) - InfoSec
  - [Gelos](#) - Free Software
- [Debian Contributor](#)
  - [Packaging](#)
  - Localization
  - Debian Developer (DD)
- Software Engineer at [Magalu Cloud](#)



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# Who Are You?

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- A few questions:
  1. Do you know curl?
  2. Have you used curl/libcurl?
  3. Do you use Debian?
  4. Do you use curl/libcurl from Debian?
  5. Do you know how to build curl?
  6. Do you know how to build the curl debian package?



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# curl in Debian



# What is curl in Debian?

- curl maintainers
  - samueloph, charles\*, sergiodj
    - \* *That's me*
- 4 source package
  - curl, trurl, nghttp3, ngtcp2
- 15 binary packages
- 48 open bugs



# What is curl in Debian? [part 2]

- 1 source package (curl) and 6 binary packages (2 ssl backends)
  - curl (the CLI tool - openssl backend)
    - 97 reverse dependencies and 64 *weak* ones
  - libcurl4t64 (libcurl gnutls backend)
    - 289 reverse dependencies
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## What is curl in Debian? [part 3]

- ~ 676 reverse dependencies (r-deps)
- ~ 178 r-deps in autopkgtest
- key package set
- Popcon: 198821 (out of 282420)
  - Debian's popularity contest (opt-in)
  - Installed in ~2 out of 3 machines
- Big impact on the archive!
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## So...

- How can we:
  - Improve the quality of cURL?
  - Diminish the chance of regressions?
  - Contribute back to upstream?



# Topics we will cover

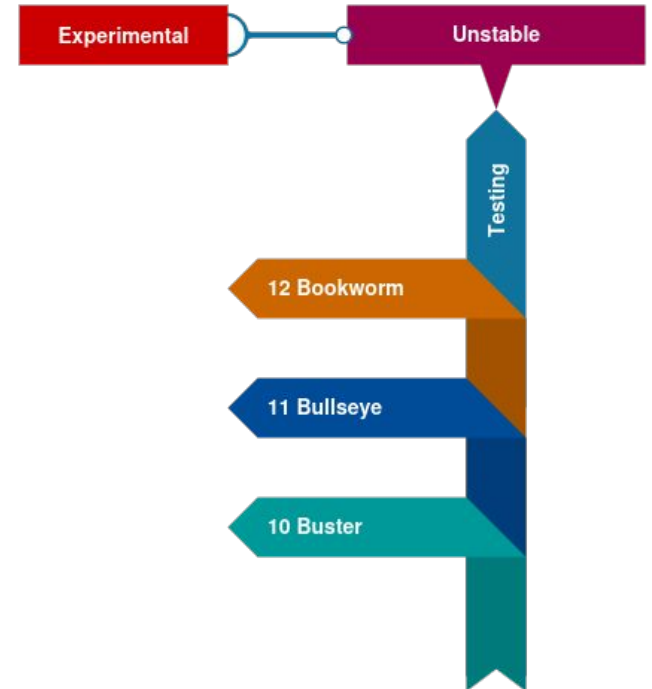
- DebCI (Debian's Continuous Integration tests)
- SalsaCI autopkgtest (Gitlab CI)
- RC releases
- Experimental features
- GnuTLS as curl cli SSL backend
- Lintian
- Reproducible builds
- Building the curl package

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**But first... Debian releases**

# The Debian development cycle

- Objective:
  - Release the stable version
- How?
  - Freeze the development version
- The many “distros”
  - **Unstable** - Sid
    - Experimental - RC-Buggy
  - **Testing** - Nova estável
  - **Stable** - Oficial
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# Package tests

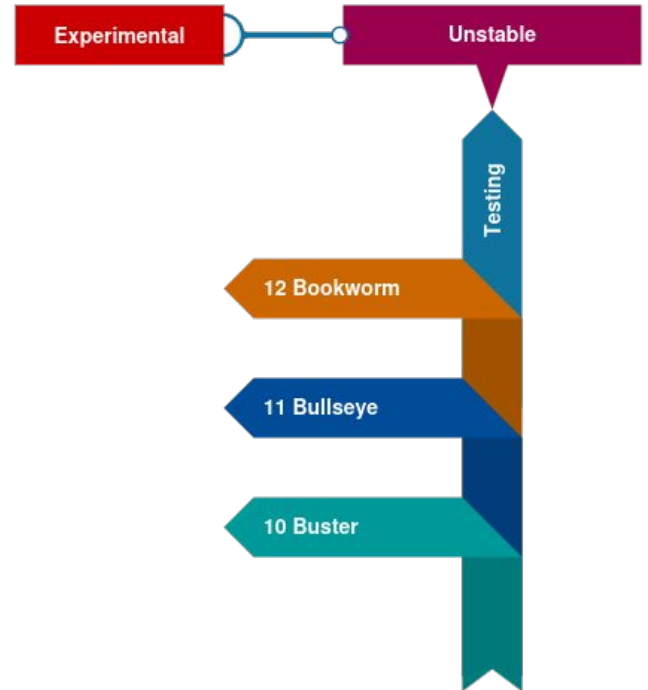


# Autopkgtest

- What is it?
  - Install the package
  - Install dependencies
  - Let you run scripts
  - Check the return code
- Some examples
  - Simple one: `curl --version`
  - More complex: `run-my-tests.sh`

# Autopkgtest

- Extensive testing!
  - Regular upstream tests
  - Debug upstream tests
  - Python tests (not merged yet)
  - LDAP integration tests\*
  - Build program using libcurl\*
    - \* Regression tests!
- When?
  - On every commit (salsa-ci)
  - Locally before uploading (autopkgtest)
  - When hitting the archive (debci)
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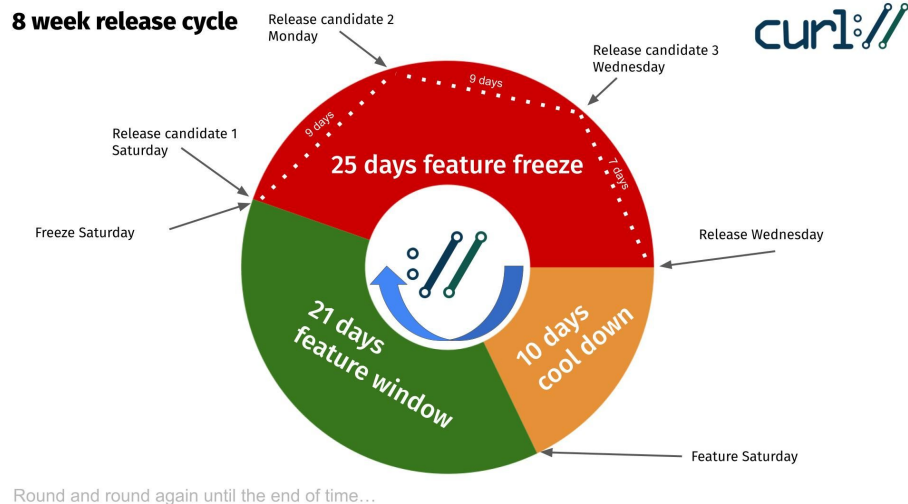


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# RC Releases

# Release Candidates

- Extensive upstream testsuite
  - But can't cover it all!
  - Bugs found only after release
    - Patch releases
- Release Candidates
  - ~ 3-week feature window
  - ~ 3-week of feature freeze
    - RC every 9 days
  - ~ 1-week cooldown
- RC1 to experimental and RC2 to unstable



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# Experimental Features



# Experimental Features

- Not ready for prime time just yet
- Can be tested and used already
- Currently:
  - HTTPS RR and ECH
  - SSL import/export
- Enabled in Debian ~~experimental~~ unstable/testing
  - What about stable?

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# Switching cURL's CLI SSL Backend



# From OpenSSL to GnuTLS

- Motivation:
  - HTTP/3
- OpenSSL lagged behind
- GnuTLS had a pretty good support
- 1,5 year before trixie, we switched (mid 2024)
  - Switched back to OpenSSL before trixie (mid 2025)
- Backends should be mostly equivalent
  - In theory!



# From OpenSSL to GnuTLS

- Many bugs were found
- In general, GnuTLS tend to follow RFCs more strictly
- All regressions fixed!
- OpenSSL picked up pace
- In the end, we switched back for trixie
- Plan to keep building with GnuTLS

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# Debian's QA Tools Helping



# Debian QA's tools

- Tools such as:
  - Lintian
  - Reproducible Builds
  - DebCI
  - Cross-Build
  - Etc.
- Run periodically and catch Bugs
  - All reported to upstream
  - Usually with patches fixing it

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# Building curl in Debian




## Easiest way

- Clone repo and make?
  - Not so easy...
  - We have downstream patches and Debian tooling
- Easy and *dirty* way
  - Add `deb-src` lines to `sources.list`
  - `apt build-dep curl`
  - `apt source curl`
  - `dpkg-buildpackage -us -uc`



# Cleaner way

- Why?
  - Do not install packages on your system
  - Works nicely with git
- Cleaner way
  - `Add deb-src lines to sources.list`
  - `apt install devscripts sbuild git-buildpackage`
  - `debcheckout curl`
  - `gbp export-orig`
  - `*sbuild --no-clean-source`



# Contact Information

- `charles [at] debian [dot] org`
- Matrix: `charles:matrix.debian.social`
- IRC: `charles (oftc/libera)`
- Questions or Comments?
- License: CC BY-SA 4.0

**From here onwards:  
slides for presentation**





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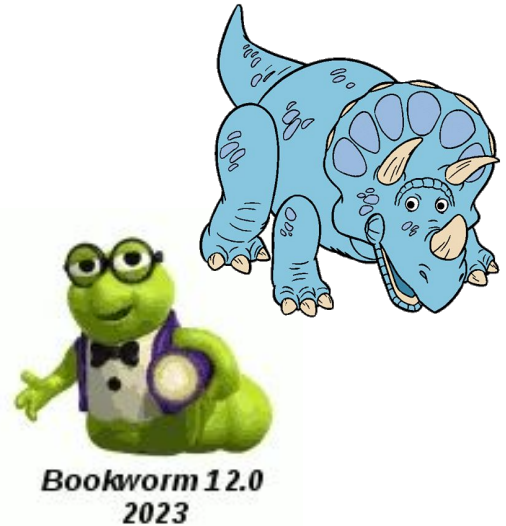
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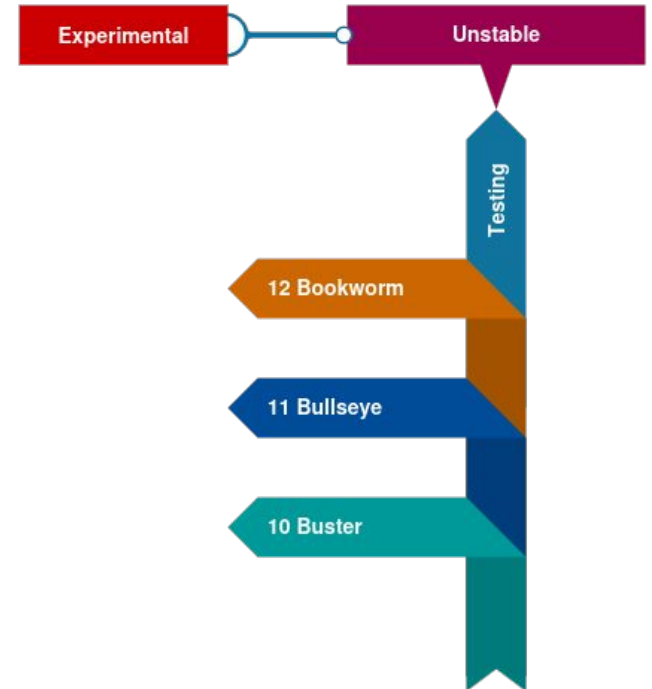
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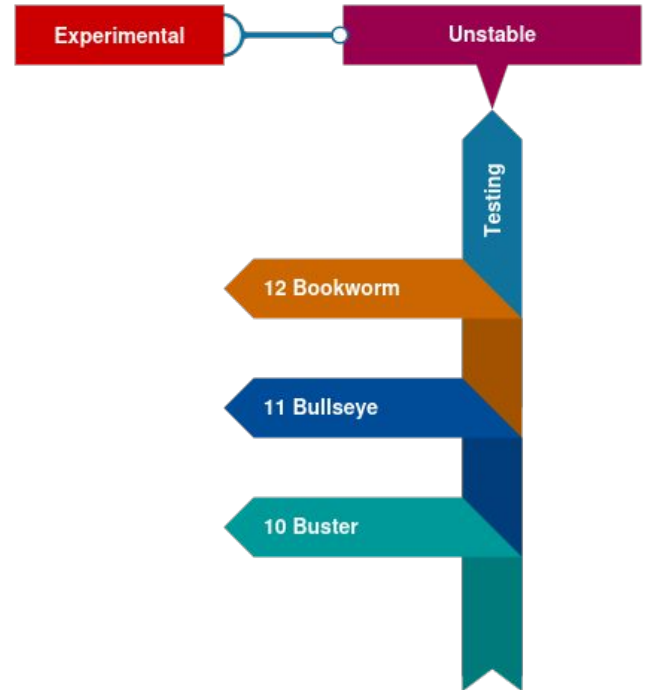


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## Experimental: Pseudo-Excuse for curl

- Migration status for curl (8.14.1-2 to 8.15.0-rc2-1~exp1): Waiting for test results or another package, or too young (no action required now - check later)
- Issues preventing migration:
  - autopkgtest for `abi-monitor`: amd64: [Test in progress](#), arm64: [Test in progress](#)
  - autopkgtest for `afflib`: amd64: [Test in progress](#), arm64: [Test in progress](#)
  - autopkgtest for `alertmanager-irc-relay`: amd64: [Test in progress](#), arm64: [Test in progress](#)
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  - autopkgtest for `bibtexconv`: amd64: [Test in progress](#), arm64: [Test in progress](#)
  - autopkgtest for `bl`: amd64: [Test in progress](#), arm64: [Test in progress](#)
  - autopkgtest for `butt`: amd64: [Test in progress](#), arm64: [Test in progress](#)
  - autopkgtest for `caddy`: amd64: [Test in progress](#), arm64: [Test in progress](#)
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  - autopkgtest for `cdebootstrap`: amd64: [Test in progress](#), arm64: [Test in progress](#)
  - autopkgtest for `cdo`: amd64: [Test in progress](#), arm64: [Test in progress](#)
  - autopkgtest for `ceph`: amd64: [Test in progress](#), arm64: [Test in progress](#)
  - autopkgtest for `chfsio`: amd64: [Test in progress](#), arm64: [Test in progress](#)
  - autopkgtest for `cht.sh`: amd64: [Test in progress](#), arm64: [Test in progress](#)
  - autopkgtest for `climp`: amd64: [Test in progress](#), arm64: [Test in progress](#)
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  - autopkgtest for `dirb`: amd64: [Test in progress](#), arm64: [Test in progress](#)



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- autopkgtest for [kicad](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [kodi](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [lammps](#): amd64: [Test in progress](#), arm64: [Test in progress](#)



# Autopkgtest

- Extensive testing!
  - Regular upstream tests
  - Debug upstream tests
  - Python tests (not merged yet)
  - LDAP integration tests\*
  - Build program using libcurl\*  
\* Regression tests!
- When?
  - On every commit (salsa-ci)
  - Locally before uploading (autopkgtest)
  - When hitting the archive (debci)
  - On dependencies changes (debci)

- autopkgtest for [ssl-cert](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [sss](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [staden-io-libs](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [stenographer](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [strongswan](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [sunxi-tools](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [syslog-ng](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [systemd](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [tang](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [tls-wrapper](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [tor](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [tpm2-tools](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [trojan](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [trurl](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [uget](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [ulfius](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [unifrac-tools](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [uwsjl](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [uwsjl-plugin-php](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [vagrant](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [vip-manager](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [virtualbox](#): amd64: [Test in progress](#)
- autopkgtest for [vorbis-tools](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [webhook](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [weborf](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [wesnoth-1.18](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [wxwidgets3.2](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [xerces-c](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [xmltooling](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [xmoto](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [ykclient](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [ytzf](#): amd64: [Test in progress](#), arm64: [Test in progress](#)
- autopkgtest for [zchunk](#): amd64: [Test in progress](#), arm64: [Test in progress](#)

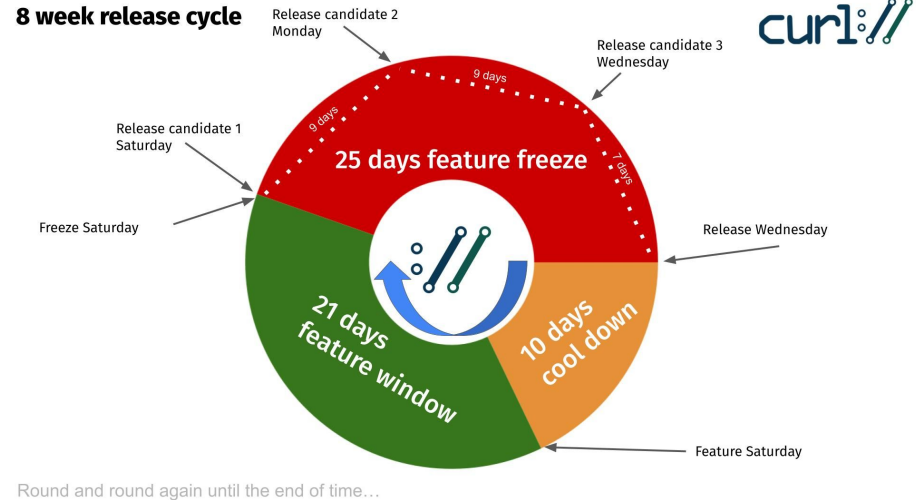
Excuses generated on: Tue Jul 1 10:24:27 2025 UTC

---

# RC Releases

# Release Candidates

- Extensive upstream testsuite
  - But can't cover it all!
  - Bugs found only after release
    - Patch releases
- Release Candidates
  - ~ 3-week feature window
  - ~ 3-week of feature freeze
    - RC every 9 days
  - ~ 1-week cooldown
- RC1 to experimental and RC2 to unstable



---

# Experimental Features



# Experimental Features

- Not ready for prime time just yet
- Can be tested and used already



# Experimental Features

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- Can be tested and used already
- Currently:
  - HTTPS RR and ECH
  - SSL import/export



# Experimental Features

- Not ready for prime time just yet
- Can be tested and used already
- Currently:
  - HTTPS RR and ECH
  - SSL import/export
- Enabled in Debian ~~experimental~~ unstable/testing
  - What about stable?

---

# Switching cURL's CLI SSL Backend



# From OpenSSL to GnuTLS

- Motivation:
  - HTTP/3



# From OpenSSL to GnuTLS

- Motivation:
  - HTTP/3
- OpenSSL lagged behind
- GnuTLS had a pretty good support



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  - Switched back to OpenSSL before trixie (mid 2025)



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  - HTTP/3
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  - Switched back to OpenSSL before trixie (mid 2025)
- Backends should be mostly equivalent
  - In theory!



# From OpenSSL to GnuTLS

- Many bugs were found
- In general, GnuTLS tend to follow RFCs more strictly
- All regressions fixed!
- OpenSSL picked up pace
- In the end, we switched back for trixie
- Plan to keep building with GnuTLS

---

# Debian's QA Tools Helping



# Debian QA's tools

- Tools such as:
  - Lintian
  - Reproducible Builds
  - DebCI
  - Cross-Build
  - Etc.
- Run periodically and catch Bugs
  - All reported to upstream
  - Usually with patches fixing it

---

# Building curl in Debian



# Easiest way

- Clone repo and make?
  - Not so easy...
  - We have downstream patches and Debian tooling



## Easiest way

- Clone repo and make?
  - Not so easy...
  - We have downstream patches and Debian tooling
- Easy and *dirty* way
  - Add `deb-src` lines to `sources.list`
  - `apt build-dep curl`
  - `apt source curl`
  - `dpkg-buildpackage -us -uc`




# Cleaner way

- Why?
  - Do not install packages on your system
  - Works nicely with git



# Cleaner way

- Why?
  - Do not install packages on your system
  - Works nicely with git
- Cleaner way
  - `Add deb-src lines to sources.list`
  - `apt install devscripts sbuild git-buildpackage`
  - `debcheckout curl`
  - `gbp export-orig`
  - `*sbuild --no-clean-source`



# Contact Information

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- Matrix: `charles:matrix.debian.social`
- IRC: `charles (oftc/libera)`
- Questions or Comments?
- License: CC BY-SA 4.0