Overview of {yum,zypp}.postgresql.org, and challenges around RPMifying extensions

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Self introduction

- PostgreSQL Major Contributor
- Responsible for the PostgreSQL RPM repos (Red Hat, Rocky, AlmaLinux, Fedora and SLES)
- Fedora and Rocky Linux contributor
- PostgreSQL community member
- Postgres expert @ EDB
- London, UK.
Nowadays:
Agenda

- How it started?
- Repository contents
- Supported distros
- Extension packaging
- How to RPMify an extension?
- Updating an extension
- Horror story: PostgreSQL XY Beta is out!
- Where is the maintainer?
- Relying on external repositories
How it started?
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- Lamar Owen and Tom Lane
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  - No signature, nothing “official”.

EDB
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● 2008 : First RPM Buildfarm
● 2010: “Multiple postmaster support” (9.0)
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- ... and now: 2024!
Repository contents
Repository main content

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    - pgbadger, libpqxx, drivers, GIS stack (except PostGIS)
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  - Extensions!
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- **non-free**
  - Packages that depend on closed source software or has license restrictions:
    - ora2pg, oracle_fdw, pg-strom, timescaledb-tsl
    - informix_fdw, informix_fdw, perl-DBD-Oracle
Supported distros
Supported distros

- **Red Hat Enterprise Linux**
  - Rocky Linux, AlmaLinux
  - x86_64, aarch64, ppc64le
  - RHEL 9, 8 and 7
- **Fedora Linux**
  - x86_64
  - Only 2 major releases supported (matches Fedora lifecycle)
- **SuSE Enterprise Linux**
  - x86_64
  - SLES 15 and SLES 12
Extension packaging
In-core extensions

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- Separate package for each major version
  - /usr/pgsql-16/share/bin
  - /usr/pgsql-16/share/extension
  - /usr/pgsql-16/share/lib
  - /usr/pgsql-16/share/man
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- Base for the out-of-core extensions
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  - Less often: ExtensionNameExtensionMajorVersion_PGMajorVersion
    - postgis34_16
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- Fedora is safe.
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  - (Just copy from one of the existing ones :-) )
- Add patches, if necessary
  - Used to carry more patches in the past, but we now export PATH.
RPMifying an extension

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  - Some distros may have the dependency under a different name
  - etc.
RPMifying an extension

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RPMifying an extension

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  - Back to the drawing board if something fails
  - GCC, CMake, LLVM, etc.
- If all is ok, push to the repos.
- No proper announcement!
Updating an extension
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● First thing first: Know that the extension has an update!
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  ○ Fedora has a in-house solution
Updating an extension

- First thing first: Know that the extension has an update!
  - This is another real challenge
  - Fedora has a in-house solution
  - Not impossible to use for us, needs hacking
Updating an extension

- Did it break anything?
Updating an extension

- Did it break anything?
- Did it break a previous (and supported) PostgreSQL release?
  - Yeah, it happens
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  - Yeah, it happens
- Did the upgrade path work?
Updating an extension

- Did it break anything?
- Did it break a previous (and supported) PostgreSQL release?
  - Yeah, it happens
- Did the upgrade path work?
- Did I break anything?
Horror Story: PostgreSQL XY Beta is out!
Life of a Packager...

- “PostgreSQL XY Beta 1 is out”
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- “PostgreSQL XY Beta 1 is out”
- Time to start building extensions
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  - Many of them fail
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  - Create ticket against each one
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- “PostgreSQL XY Beta 1 is out”
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  - Many of them fail
  - Create ticket against each one
  - “Display” them under wiki.postgresql.org:
    - [https://wiki.postgresql.org/wiki/PostgreSQL_16_Extension_Bugs](https://wiki.postgresql.org/wiki/PostgreSQL_16_Extension_Bugs)
Life of a Packager...

- Pester the extension authors
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Where is the maintainer?
Non-responsive maintainers

- No response to the tickets/emails
Non-responsive maintainers

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- Not updating the extensions for the recent PostgreSQL versions
Non-responsive maintainers

- No response to the tickets/emails
- Not updating the extensions for the recent PostgreSQL versions
- Not updating the extensions for the new GCC versions
Non-responsive maintainers

- What is the responsibility of the packager?
Non-responsive maintainers

- What is the responsibility of the packager?
- Going to conferences may help to find maintainers in person :-)}
Relying on external repositories
External repositories

- Big problem for SLES
External repositories

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  - Discontinued repositories
External repositories

- Big problem for SLES
  - Discontinued repositories
  - Lack of maintenance
External repositories

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- Could be a problem for EPEL, but I can add any package there
External repositories

- **Big problem for SLES**
  - Discontinued repositories
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- **Could be a problem for EPEL, but I can add any package there**
  - OTOH, EPEL is not *that* external.
Cost!
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- Hosting a build server
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  - Bare metal FTW
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  - Have to use some external resources for architectural reasons
  - “sysadmin” tasks
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- Maintaining build instances
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- Employing the packager
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  - Have to use some external resources for architectural reasons
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- Maintaining build instances
- Employing the packager
  - We have bills to pay (or beers to drink)
THANK YOU

Now it is time for questions!
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