

# RPM Packaging Collaboration

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# Contents

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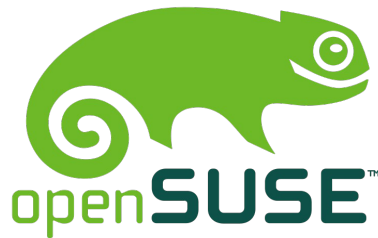
- Introduction
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# Introduction

# Who uses RPM?



Caixa Mágica





# Macro mess

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- Fedora
  - `%?dist`
- Mandriva
  - `%mkrel, %pyver, %mklibname, %makeinstall_std, %_post_service, %_preun_service, %_post_web_app, %_postun_webapp, ...`
- openSUSE
  - `%py_requires, %suse_update_desktop_file, %makeinstall, %restart_on_update, %stop_on_removal, %fillup_and_insserv, ...`

Solved ~~Problems~~



# BuildRoot issues

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- different handling in %install phase
- different handling in %clean phase
- security issues



# ~~BuildRoot issues~~ - solved

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- build root is safely created
  - ignoring the path from spec
- BuildRoot tag is not mandatory anymore
- doesn't need to be removed in %install
- %clean phase can be omitted completely
  - defaults to “rm -rf %{buildroot}” now



# Python packaging

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- Fedora

- `%define python_sitelib %(python -c "from distutils.sysconfig import get_python_lib; print get_python_lib()")`
- `%define python_sitearch %(python -c "from distutils.sysconfig import get_python_lib; print get_python_lib(1)")`

- openSUSE

- `%define py_ver %(python -c "import sys; print sys.version[:3]")`
- `%define py_libdir %[_libdir]/python%{py_ver}`
- `%define py_sitedir %{py_libdir}/site-packages`



# ~~Python packaging~~ - solved

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- macros from Fedora adopted in upstream
- openSUSE is using them too now
- allows noarch python packages



# %makeinstall legacy

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- RPM upstream
  - make \
    - prefix="%{buildroot}%{\_prefix}" \
      - libdir="%{buildroot}%{\_libdir}" \
        - ...
- openSUSE
  - make DESTDIR=\$RPM\_BUILD\_ROOT install
- Mandriva
  - uses %makeinstall\_std macro
- Fedora
  - doesn't use any macro



# ~~%makeinstall legacy~~ - solved

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- RPM upstream introduced `%make_install`
  - `make install DESTDIR=%{?buildroot}`
- keep `%makeinstall`
  - for compatibility with old/broken packages

# Unsolved Problems



# Desktop files handling

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- Fedora / Mandriva
  - BuildRequires: desktop-file-utils
  - exec binaries in %install
    - desktop-file-validate
    - desktop-file-install
- openSUSE
  - BuildRequires: update-desktop-files
  - in %install
    - %suse\_update\_desktop\_file macro



# Desktop files handling

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- possible solution
  - try to unify the procedure
  - if some macro is still needed, try to push it to RPM upstream



# Ruby packaging

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- Fedora
  - `%global ruby_sitelib %(ruby -rrbconfig -e 'puts Config::CONFIG["sitelibdir"]')`
  - `%global ruby_sitearch %(ruby -rrbconfig -e 'puts Config::CONFIG["sitearchdir"]')`
  - `%global gemdir %(ruby -rubygems -e 'puts Gem::dir' 2>/dev/null)`
- openSUSE
  - define `%rb_ver` and `%rb_arch` macros
  - `#{_libdir}/ruby/vendor_ruby/#{rb_ver}`
  - `#{_libdir}/ruby/vendor_ruby/#{rb_ver}/#{rb_arch}`
  - `#{_libdir}/ruby/gems/#{rb_ver}`
  - `%gem_install`
- `site_ruby` vs. `vendor_ruby`



# Ruby packaging

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- possible solution
  - create common macros in upstream
  - use them consistently in distributions



# Parallel build

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- Fedora
  - `make %{?_smp_mflags}`
- openSUSE
  - `make %{?jobs:-j%jobs}`
- Mandriva
  - `%make`



# Parallel build

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- possible solutions
  - a) unify notation
    - `%{?_smp_mflags}`
    - unusable for e.g. parallel automake
  - b) add the definition to RPM upstream
    - `%make` for parallel build
    - `%make_single` for single



# Init scripts

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- Fedora
  - LSB headers not required, but honored
  - `./etc/rc.d/init.d/functions`
- Mandriva
  - LSB headers encouraged
  - `./etc/rc.d/init.d/functions`
- openSUSE
  - LSB headers required
  - `./etc/rc.status`
- `%_initrddir` vs. `%_initddir`



# Init scripts – Fedora spec

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Requires(post): chkconfig

Requires(postun): initscripts

Requires(preun): chkconfig

Requires(preun): initscripts

%post

/sbin/chkconfig --add <script>

%preun

if [ "\$1" -eq "0" ] ; then

    /sbin/service <script> stop >/dev/null 2>&1

    /sbin/chkconfig --del <script>

fi

%postun

if [ "\$1" -ge "1" ] ; then

    /sbin/service <script> condrestart >/dev/null 2>&1 || :

fi



# Init scripts – openSUSE spec

---

Requires(pre): %insserv\_prereq %fillup\_prereq

%post

%fillup\_and\_insserv <script>

%restart\_on\_update <script>

%preun

%stop\_on\_removal <script>

%postun

%insserv\_cleanup



# Init scripts – Mandriva spec

---

```
Requires(pre): rpm-helper
```

```
%post
```

```
  %_post_service <script>
```

```
%preun
```

```
  %_preun_service <script>
```

# Future Development



# File triggers

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- get rid of a large number of scriptlets
  - `ldconfig`, `gtk-update-icon-cache`,  
`install/remove-info-file`, ...
- already implemented in Mandriva
- Panu Matilainen working on implementation



# File triggers - Mandriva

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```
% cat /var/lib/rpm/filetriggers/ldconfig.filter
```

```
^.(/lib|/usr/lib)/[^/]*\.so\.
```

```
% cat /var/lib/rpm/filetriggers/ldconfig.script
```

```
#!/bin/sh  
ldconfig -X
```

```
% cat /var/lib/rpm/filetriggers/gtk-icon-cache-hicolor.filter
```

```
^./usr/share/icons/hicolor/
```

```
% cat /var/lib/rpm/filetriggers/gtk-icon-cache-hicolor.script
```

```
#!/bin/sh  
/usr/bin/gtk-update-icon-cache --force --quiet \  
/usr/share/icons/hicolor
```



# Update scriptlets

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- introduce a pair of new scriptlets:
  - %preup + %postup
- called on package update
  - %preun, %postun, %pre, %post not run
- allow to fix broken uninstall scriptlets
- remove the need for weird stuff
  - `if [ "$1" -eq "0" ];`



# Scriptlet arguments

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- provide more information about transaction
  - e.g. NEVRA, ...
- use environment variables
- detect more precisely what is happening
- allow to handle special situations
  - e.g. Apache 1.x vs. Apache 2.x update



# Tilde in version

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- use special character ~ to represent a negative version token
- get rid of complicated rules which abuse the version and release tags
- example: Python 2.6 Alpha 1, 2.6 Beta 2, 2.6 RC 3
  - Python-2.5.80.1, python-2.5.90.2, python-2.5.99.3
  - python-2.6~a1, python-2.6~b2, python-2.6~rc3



# Add/remove autogenerated deps

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- RPM can generate dependencies automatically
  - results are not always OK
- workaround by redefining the macros in spec file
  - `__find_provides`
  - `__find_requires`
  - `__find_supplements`
  - ...
  - ```
%define __find_supplements sh -c  
'/usr/lib/rpm/find-supplements %{name} |  
grep -v pci:v00001022d00002000'
```



# Links

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- <http://rpm.org/wiki/Problems/Distributions>
- <http://stick.gk2.sk/blog/tag/rpm/>
- <http://fedoraproject.org/wiki/Packaging:Guidelines>
- <http://en.opensuse.org/Packaging/Guidelines>
- <http://wiki.mandriva.com/en/Development/Packaging>

Questions?

Thank you!