

Rolling your first package into openSUSE Build Service

Pavol Rusnák

openSUSE Boosters Team

prusnak@opensuse.org



Software and Linux



Software and Linux

- mostly compiled from sources
 - ./configure ; make ; make install
 - cmake ; make ; make install
- sometimes it is more complicated
 - use a well-proven build system (autotools, cmake, ...)



Well-proven build system

- honors \$DESTDIR
- honors \$CFLAGS, \$CXXFLAGS, ...
- options to override libdir, datadir, etc.
- takes care of dependencies
- out of source directory compilation



Your own build system

- don't use it
- it is probably missing some features
- customizations are hard or impossible

*Harder for distributions
to include your software!*



Ordinary users

- ordinary users are afraid of compilation
- ordinary users want an easy installation
- packages in distributions provide this



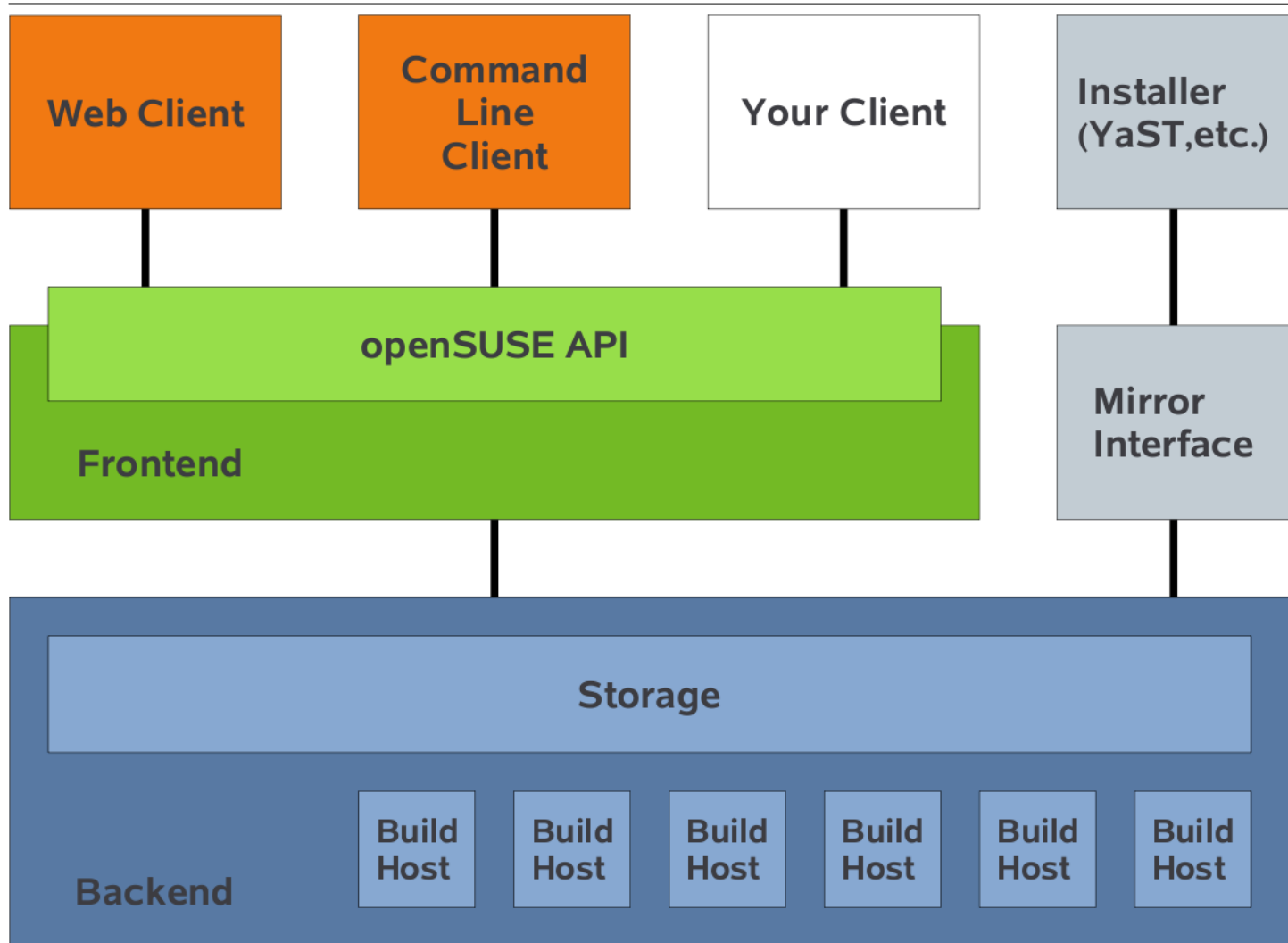
Software and Linux

- there are more than one/two distributions
- supporting all of them is not easy
 - even subtle differences make it hard

openSUSE Build Service



Architecture





Features

- packages are ordered into projects/subprojects
- create packages in teams (co-maintainers)
- add files locally, using URL or source services
- view/edit files
- add/remove distributions for which to build
- add/remove platforms for which to build
- monitor state and view logs

*create package easily and
offer it to the end users*



Distributions

- openSUSE
- SUSE Linux Enterprise
- Fedora
- CentOS
- Red Hat Enterprise Linux
- Mandriva
- Ubuntu
- Debian
- others ...

RPM



What is RPM?

- Package management system
 - rpm CLI tool, librpm
 - local database (Berkeley DB)
- Binary format
 - Header
 - Signature
 - GPG / MD5
 - Metadata
 - name, version, release, architecture, filelist, ...
 - File archive
 - compressed cpio (gzip, bzip2, lzma/xz)

.spec



spec file for package pv

```
Name:                pv
Url:                 http://www.ivarch.com/programs/pv.shtml
License:             Artistic License
Group:               Development/Tools
Version:             1.1.4
Release:             1
Summary:             Pipe Viewer
Source:              %{name}-%{version}.tar.bz2
BuildRoot:           %{_tmppath}/%{name}-%{version}-build
BuildRequires:      gcc make
```

%description

A terminal-based tool for monitoring the progress of data through a pipeline.

%prep

```
%setup -q
```

%build

```
%configure
```

```
make
```

%install

```
make DESTDIR=%{buildroot} install
```

```
%find_lang %{name}
```

%clean

```
rm -rf %{buildroot}
```

```
%files -f %{name}.lang
```

```
%defattr(-,root,root)
```

```
%doc README doc/NEWS doc/TODO doc/COPYING
```

```
%{_bindir}/*
```

```
%{_mandir}/man1/*
```



spec file for package pv

```
Name:                pv
Url:                 http://www.ivarch.com/programs/pv.shtml
License:            Artistic License
Group:              Development/Tools
Version:            1.1.4
Release:            1
Summary:            Pipe Viewer
Source:              %{name}-%{version}.tar.bz2
BuildRoot:          %{_tmppath}/%{name}-%{version}-build
BuildRequires:      gcc make
```

```
%description
```

```
A terminal-based tool for monitoring the progress of data through a pipeline.
```

```
%prep
```

```
%setup -q
```

```
%build
```

```
%configure
```

```
make
```

```
%install
```

```
make DESTDIR=%{buildroot} install
```

```
%find_lang %{name}
```

```
%clean
```

```
rm -rf %{buildroot}
```

```
%files -f %{name}.lang
```

```
%defattr(-,root,root)
```

```
%doc README doc/NEWS doc/TODO doc/COPYING
```

```
%{_bindir}/*
```

```
%{_mandir}/man1/*
```



```
# spec file for package pv
```

```
Name:                pv
Url:                http://www.ivarch.com/programs/pv.shtml
License:           Artistic License
Group:             Development/Tools
Version:          1.1.4
Release:          1
Summary:           Pipe Viewer
Source:            %{name}-%{version}.tar.bz2
BuildRoot:        %{_tmppath}/%{name}-%{version}-build
BuildRequires:    gcc make
```

```
%description
```

```
A terminal-based tool for monitoring the progress of data through a pipeline.
```

```
%prep
```

```
%setup -q
```

```
%build
```

```
%configure
```

```
make
```

```
%install
```

```
make DESTDIR=%{buildroot} install
```

```
%find_lang %{name}
```

```
%clean
```

```
rm -rf %{buildroot}
```

```
%files -f %{name}.lang
```

```
%defattr(-,root,root)
```

```
%doc README doc/NEWS doc/TODO doc/COPYING
```

```
%{_bindir}/*
```

```
%{_mandir}/man1/*
```



spec file for package pv

```
Name:                pv
Url:                 http://www.ivarch.com/programs/pv.shtml
License:            Artistic License
Group:              Development/Tools
Version:            1.1.4
Release:            1
Summary:            Pipe Viewer
Source:              %{name}-%{version}.tar.bz2
BuildRoot:           %{_tmppath}/%{name}-%{version}-build
BuildRequires:      gcc make
```

%description

A terminal-based tool for monitoring the progress of data through a pipeline.

```
%prep
%setup -q

%build
%configure
make

%install
make DESTDIR=%{buildroot} install
%find_lang %{name}

%clean
rm -rf %{buildroot}

%files -f %{name}.lang
%defattr(-,root,root)
%doc README doc/NEWS doc/TODO doc/COPYING
%{_bindir}/*
%{_mandir}/man1/*
```



```
# spec file for package pv
```

```
Name:                pv
Url:                 http://www.ivarch.com/programs/pv.shtml
License:            Artistic License
Group:              Development/Tools
Version:            1.1.4
Release:            1
Summary:            Pipe Viewer
Source:              %{name}-%{version}.tar.bz2
BuildRoot:           %{_tmppath}/%{name}-%{version}-build
BuildRequires:      gcc make
```

```
%description
```

```
A terminal-based tool for monitoring the progress of data through a pipeline.
```

```
%prep
```

```
%setup -q
```

```
%build
```

```
%configure
```

```
make
```

```
%install
```

```
make DESTDIR=%{buildroot} install
```

```
%find_lang %{name}
```

```
%clean
```

```
rm -rf %{buildroot}
```

```
%files -f %{name}.lang
```

```
%defattr(-,root,root)
```

```
%doc README doc/NEWS doc/TODO doc/COPYING
```

```
%{_bindir}/*
```

```
%{_mandir}/man1/*
```



```
# spec file for package pv
```

```
Name:                pv
Url:                 http://www.ivarch.com/programs/pv.shtml
License:            Artistic License
Group:              Development/Tools
Version:            1.1.4
Release:            1
Summary:            Pipe Viewer
Source:              %{name}-%{version}.tar.bz2
BuildRoot:          %{_tmppath}/%{name}-%{version}-build
BuildRequires:      gcc make
```

```
%description
```

```
A terminal-based tool for monitoring the progress of data through a pipeline.
```

```
%prep
```

```
%setup -q
```

```
%build
```

```
%configure
```

```
make
```

```
%install
```

```
make DESTDIR=%{buildroot} install
```

```
%find_lang %{name}
```

```
%clean
```

```
rm -rf %{buildroot}
```

```
%files -f %{name}.lang
```

```
%defattr(-,root,root)
```

```
%doc README doc/NEWS doc/TODO doc/COPYING
```

```
%{_bindir}/*
```

```
%{_mandir}/man1/*
```



spec file for package pv

```
Name:                pv
Url:                 http://www.ivarch.com/programs/pv.shtml
License:            Artistic License
Group:              Development/Tools
Version:            1.1.4
Release:            1
Summary:            Pipe Viewer
Source:              %{name}-%{version}.tar.bz2
BuildRoot:           %{_tmppath}/%{name}-%{version}-build
BuildRequires:      gcc make
```

%description

A terminal-based tool for monitoring the progress of data through a pipeline.

%prep

%setup -q

%build

%configure

make

%install

make DESTDIR=%{buildroot} install

%find_lang %{name}

%clean

rm -rf %{buildroot}

%files -f %{name}.lang

%defattr(-,root,root)

%doc README doc/NEWS doc/TODO doc/COPYING

*%{_bindir}/**

*%{_mandir}/man1/**



```
# spec file for package pv
```

```
Name:                pv
Url:                 http://www.ivarch.com/programs/pv.shtml
License:            Artistic License
Group:              Development/Tools
Version:            1.1.4
Release:            1
Summary:            Pipe Viewer
Source:              %{name}-%{version}.tar.bz2
BuildRoot:          %{_tmppath}/%{name}-%{version}-build
BuildRequires:      gcc make
```

```
%description
```

```
A terminal-based tool for monitoring the progress of data through a pipeline.
```

```
%prep
```

```
%setup -q
```

```
%build
```

```
%configure
```

```
make
```

```
%install
```

```
make DESTDIR=%{buildroot} install
```

```
%find_lang %{name}
```

```
%clean
```

```
rm -rf %{buildroot}
```

```
%files -f %{name}.lang
```

```
%defattr(-,root,root)
```

```
%doc README doc/NEWS doc/TODO doc/COPYING
```

```
%{_bindir}/*
```

```
%{_mandir}/man1/*
```



spec file for package pv

```
Name:                pv
Url:                 http://www.ivarch.com/programs/pv.shtml
License:            Artistic License
Group:              Development/Tools
Version:            1.1.4
Release:            1
Summary:            Pipe Viewer
Source:              %{name}-%{version}.tar.bz2
BuildRoot:           %{_tmppath}/%{name}-%{version}-build
BuildRequires:      gcc make
```

%description

A terminal-based tool for monitoring the progress of data through a pipeline.

%prep

%setup -q

%build

%configure

make

%install

make DESTDIR=%{buildroot} install

%find_lang %{name}

%clean

rm -rf %{buildroot}

%files -f %{name}.lang

%defattr(-,root,root)

%doc README doc/NEWS doc/TODO doc/COPYING

*%{_bindir}/**

*%{_mandir}/man1/**



Dependencies

- BuildRequires
- Requires
- Provides
- Conflicts
- Obsoletes
- Recommends
- Suggests
- Supplements



Scriptlets

- %pre
- %post

- %preun
- %postun

- %pretrans
- %posttrans

- %triggerin, %triggerun, %triggerpostun

DEB

Differences between DEB and RPM



- DSC file, debian dir
- virtual packages
- boolean pkg relationships
- priority
- binary scriptlets



- SPEC file
- provides
- file dependencies
- copyright info
- doc files, ghost files
- verify scriptlet

Demo



Advanced Usage

make %{_smp_mflags}



Advanced Usage

```
%if 0%{?suse_version} >= 1130
    BuildRequires: mozilla-xulrunner192
%else
    BuildRequires: mozilla-xulrunner191
%end
```



Advanced Usage

```
%if 0%{?suse_version}
    BuildRequires: dbus-1-glib-devel
%end
%if 0%{?fedora_version}
    BuildRequires: dbus-glib-devel
%end
%if 0%{?mandriva_version}
    BuildRequires: libdbus-glib-1_2-devel
%end
```



Advanced Usage

BuildRequires: pkgconfig(dbus-glib-1)



More at the MeeGo Conference

talk “MeeGo and OBS”

today 15:30
President's Terrace

Anas Nashif
Michael Schroeder
Adrian Schroeter

BoF “Advanced Packaging Techniques”

tomorrow 12:00
President's Terrace

Jan-Simon Moeller



Resources – Packaging

RPM

- <http://wiki.meego.com/Packaging/Guidelines>
- <http://fedoraproject.org/wiki/Packaging:Guidelines>
- http://en.opensuse.org/openSUSE:Packaging_guidelines
- <http://rpm.org/max-rpm/>

DEB

- <http://wiki.ubuntu.com/PackagingGuide>
- <http://debian.org/doc/debian-policy/>



Resources – Build Service

- <http://build.opensuse.org/>
- http://wiki.opensuse.org/openSUSE:Build_Service
- #opensuse-buildservice (irc.freenode.net)
- opensuse-buildservice@opensuse.org
- <http://gitorious.org/opensuse/build-service>
- <http://gitorious.org/opensuse/osc>

Lunch!