

# Building your first RPM package



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# Basic knowledge

RPM = RPM Package Manager

Spec file is for RPM what a Makefile is for „make“

Naming: `<name>-<version>-<release>.<arch>.rpm`

Some examples:

`bash-4.3.42-4.fc24.i686.rpm`

`fedora-release-24-0.17.noarch.rpm`

Source: `bash-4.3.42-4.fc24.src.rpm`



# Preparing the system

RPM needs some predefined directories:

```
drwxr-xr-x 2 robert users 4096 May 14 09:00 BUILD
drwxr-xr-x 2 robert users 4096 May 14 09:00 BUILDROOT
drwxr-xr-x 2 robert users 4096 May 14 09:00 RPMS
drwxr-xr-x 2 robert users 4096 May 14 09:00 SOURCES
drwxr-xr-x 2 robert users 4096 May 14 09:00 SPECS
drwxr-xr-x 2 robert users 4096 May 14 09:00 SRPMS
```

Get them by installing and executing tools:

- ▶ `dnf install rpmdevtools`
- ▶ `rpmdev-setuptree`



# RPM build directories

BUILD	Where source code gets compiled
BUILDROOT	Installation directory during build
RPMS	Contains created RPM packages
SOURCES	Source files (archives, patches, ...)
SPECS	Contains the „make“ files for RPM
SRPM	Holds the created SRPM packages

The RPMS directory contains subdirectories per CPU architecture like `i386`, `i586`, `i686`, `x86_64`, `noarch`



# Before starting

## Build your packages never as „root“ user

- ▶ If a Makefile or the software doesn't behave during the compiling as you've expected, you maybe could damage your whole system!
- ▶ Think about a sandbox system:  
<https://fedoraproject.org/wiki/Projects/Mock>





# Spec file tags

**Name:** Upstream name of the program/software

**Version:** Upstream version number

**Release:** Build/version number in Fedora

**Summary:** Really short summary (max. 80 chars)

**URL:** Website of the upstream program/software

**Source:** URI to the source code tarball/archive



# Spec file tags

**Group:** RPM software group according to the `/usr/share/doc/rpm-*/GROUPS` file

**License:** Package license according to the <https://fedoraproject.org/wiki/Licensing> page

**BuildRequires:** Packages the software needs to build successfully

**BuildArch:** Build limitations (only for specials or CPU independent packages required)





# Proper way to behave

- ▶ English language, charset: US-ASCII or UTF-8
- ▶ Spec file should be readable (no obfuscation)
- ▶ Comments can be used for non-obvious things
- ▶ Every packager should be able to read the file without knowing the software or the sources
- ▶ Do not use too much wildcards in the `%files` section, too much could get included into the package



# Some hints and tricks

Which license(s) does my package use?

- ▶ COPYING or LICENSE file, source code headers, ask developer/upstream if unclear

How to figure out the build requirements?

- ▶ Try, look for errors and the install packages
- ▶ `dnf group install 'Development Tools'`
- ▶ `dnf group list | grep Development`



# And here we go...

A new empty skeleton can be achieved by:

- ▶ `rpmdev-newspec <name>`

RPM package building is started usually using:

- ▶ `rpmbuild -ba <name>.spec`



# Get your package into Fedora

Go to the Fedora website and create an account:

- ▶ <https://admin.fedoraproject.org/accounts/user/new>

Follow the howtos and guidelines to get it into:

- ▶ <https://fedoraproject.org/wiki/PackageMaintainers/Join>

Actively maintain your package and care about!



# Questions?



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**Thank you!**

