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Slackware Software Packaging: How and Where To Start

How many of you are aware of the steps in creating Slackware packages

Pritvi Jheengut

13 March 2015

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- GNU Coreutils

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- mkdir
- cat
- ls

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Unix

- ■ **tar**
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- ■ find
- ■ chmod/chown
- ■ mktemp/mkdir
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Compression Utilities

Compression Utility

gzip

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xz/lzma

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Slackware Basic tools

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- **pkgtool** - The Package Manager
  - http://tukaani.org/pkgtools/ an old forked version
  - installpkg
  - removepkg
  - upgradepkg
  - explodepkg
  - makepkg - The Package Creator/Maker
  - slackbuild scripting

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Definition of a package
A Slacker's goal to world domination

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A Package

Definition: An archive format with/out instructions used for the installation of files on a system

Example

- t7z
- deb
- rpm

mime

- Slackware
- Debian
- Red Hat
- OpenSUSE

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How to install Packages

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A package manager is a collection of software tools that

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- upgrade

- configure

- remove

- performs other related jobs

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Prepare The Build Directory
Sanitize The Build Directory

Slackware

GNU/Linux

mktmp
cd /tmp/$"The␣Temporary␣File␣Just␣Created"

mktmp

Create temporary files/directoies that are predictable, safe and to avoid possible race conditions.

/tmp

The /tmp directory is assumed to cleaned regularly, sometimes assumed a tmpfs is mount over tmp

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Prepare The Build Directory
Putting The Source Code in /tmp

Copy The Source Code

Copy the source code archive into the tmp dir

Download The Source Code

Or Download the source code archive into the tmp dir

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cp ${old path}/${source code archive} .
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```
wget/curl
protocol://url/${source code archive}
```

Populating The Build Directory
Extracting the source code into The Build Directory

Extracting The Source Code

This step is optional

Extracting The Source Code

Extract files into the 'mktmp'/tmp directory

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Extract files into the 'mktmp'/tmp directory

```
tar -xvvf ../"${source_code_archive}"
```

Outline

Configuration of the source code
Pre-Configuration and Configuration

pre-configuration

Rarely is pre-configuration performed.

configuration

Most of the times configuration is needed.

Example

autotools

- aclocal
- autoconf
- automake

Example

- ./configure
- cmake
- python setup.py
- gem
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Building the Source Code

Building the Source Code

After configuration, the code has to be compiled into machine code.

Example

- make
- perl Makefile.pl
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Building the Source Code
Summary

A Summary

A summary of the job done

$$Pre - Configuration \longrightarrow Configuration \longrightarrow Building$$

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The Creation of a Package
Populating the package directory

Installation of Package Files in tmp directory

The package files are installed in a directory using the
$PKG = \$TMP/package - \$PRGNAM$ shell path parameter.

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```
make install DESTDIR=$PKG
python setup.py install --root=$PKG
gem install --install-dir $PKG/$DESTDIR
```

The Creation of a Package

Slackware

Populating the package directory

GNU/Linux

Installation of Package Files in tmp directory

The package files are installed in a directory using the $PKG = \$TMP/package - \$PRGNAM$ shell path parameter.

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make install DESTDIR=$PKG
python setup.py install --root=$PKG
gem install --install-dir $PKG/$DESTDIR
```

$Pre - Configuration \longrightarrow Configuration \longrightarrow Building \longrightarrow Install$

The Creation of a Package
Performing the usual Slackware Business

stripping of binaries

After installation of object files/binaries, they need to be stripped off of unnessecary symbols.

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```
find $PKG −print0 | xargs −0 file \
| grep −e "executable" −e "shared object" \
| grep ELF | cut −f 1 −d : \
| xargs strip −−strip−unneeded \
2> /dev/null || true
```

The Creation of a Package
Performing the usual Slackware Business

strip and the rest

stripping is one of a few more steps in making a more acceptable package, others include compressing the man and info pages, removing excess data and adding documentation
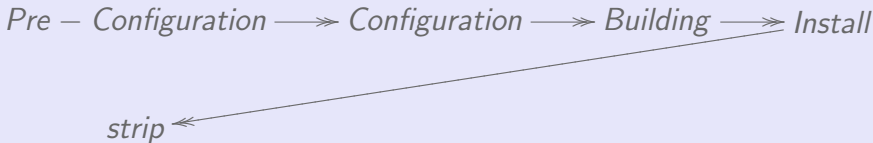
The Creation of a Package
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$Pre - Configuration \longrightarrow Configuration \longrightarrow Building \longrightarrow Install$

$strip$

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The Creation of a Package
install directory

$PKG/install directory

An extra install directory exist in all Slackware Packages. This folder normally contains two files.

- **slack-desc : This contains a summary and full description of the package.**
- doinst.sh : contains instructions for the post installation stage, most of the time linking of files.

The Creation of a Package
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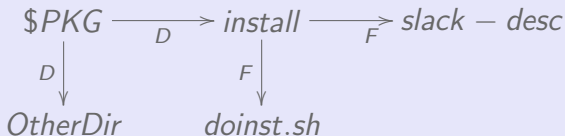
The Creation of a Package
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$PKG/install directory

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- slack-desc : This contains a summary and full description of the package.

- doinst.sh : contains instructions for the post installation stage, most of the time linking of files.

$$\$PKG \xrightarrow{D} install \xrightarrow{F} slack - desc$$
$$\downarrow D \qquad\qquad \downarrow F$$
$$OtherDir \qquad doinst.sh$$

The Creation of a Package
install directory

$PKG/install directory

Copy the slack-desc and a custom doinst.sh if necessary into ./install

The Creation of a Package

install directory

$PKG/install directory

Copy the slack-desc and a custom doinst.sh if necessary into ./install

```
mkdir −p $PKG/install

cat $CWD/slack−desc > \
$PKG/install/slack−desc

cat $CWD/doinst.sh > \
$PKG/install/doinst.sh
```

The Creation of a Package
Using makepkg

Makepkg

makepkg creates a Slackware compatible package. The package is constructed using the contents of the current directory and all subdirectories.

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Using makepkg

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```
cd $PKG
makepkg $PRGNAM.tgz
```

The Creation of a Package

makepkg options

Example

makepkg options

- **option -l :: add any symbolic links found to the install script (doinst.sh) and delete them.**
- option -c :: makepkg will reset all directory permissions to 755 and ownership to root:root

The Creation of a Package
makepkg options

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The Creation of a Package

makepkg options

Makepkg

with makepkg full options

```
/sbin/makepkg \
-l y \
-c n \
/tmp/$PRGNAM-$VERSION-$ARCH-$BUILD$TAG.tgz
```

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A Slacker's goal to world domination

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Goal

- **slack the hard way**
- sip some beer
- Take over the world
- Relax...

Goal
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Resources
If you want to improve this style

📄 LaTeX Beamer
`http://latex-beamer.sourceforge.net/`

📄 KDE Presentations
`http://www.kde.org/kdeslides/`

Questions ?

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