

a gentle intro
to **functional**
package management

with **GNU Guix**

**Package managers
are really useful.**

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are really useful.**

But they can be so frustrating!

Version conflicts
Old software
Suspenseful upgrades
The only way is forward
Changes affect all users
Trust?

No package management

You are on your own.

External repos

EPEL, PPAs, AUR... more **conflicts**, more to **trust**

Application-specific packaging

gem, cabal, pip, cpan, npm:

more packages, less management

Build your own system package

Relocatable **rpm, deb, PKGBUILD**, ...

Meta package managers

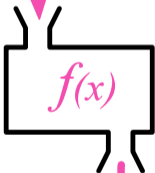
Generate system packages with e.g. **fpm**

Giving up

Packaging is hard, let's take **snapshots**.

Functional packaging

headers
sources
build tools
libraries
...



```
cabba9e-emacs-24.5/  
├ bin  
├   └ emacs  
├ lib  
├   └ ...
```

Functional packaging

Same inputs?
Same output!

```
cabba9e-emacs-24.5/
```

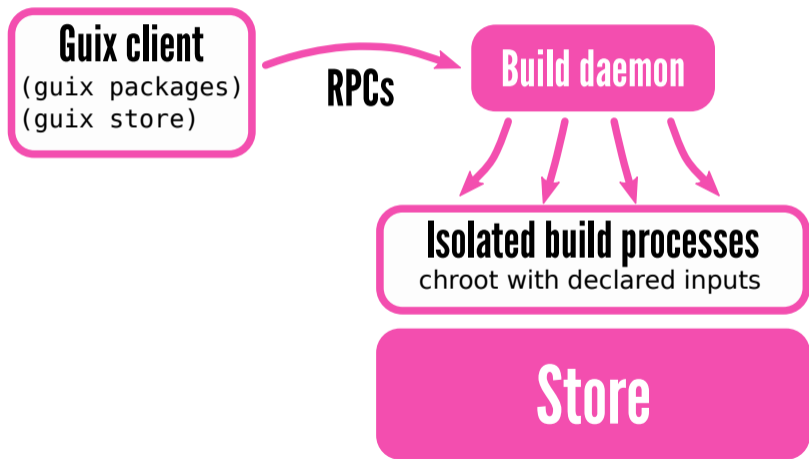
```
├ bin  
└─┬ emacs  
   └ lib  
     └ ...
```

Different inputs?
Different outputs.

```
dedbeef-emacs-24.5/
```

```
├ bin  
└─┬ emacs  
   └ lib  
     └ ...
```

GNU Guix



/home/rekado/.guix-profile

/var/guix/...

guix-profile

42

/gnu/store

hscq14x...-profile

bin

samtools

bowtie2

rhrdst11m...-samtools-1.2

bin

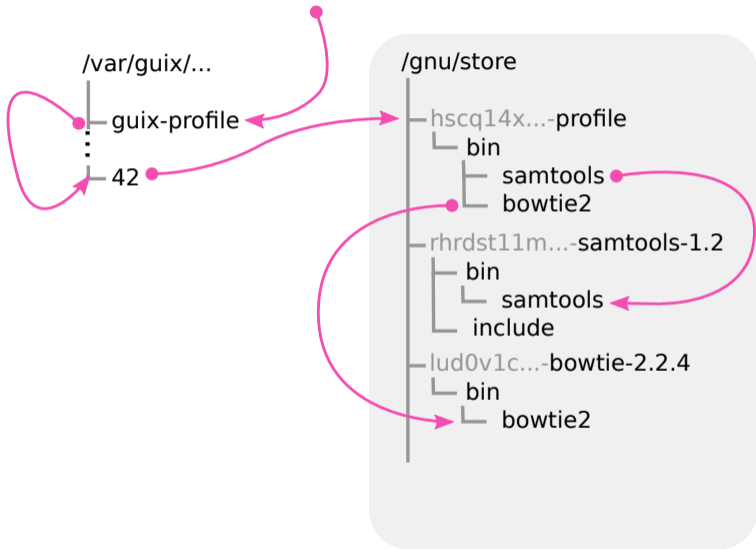
samtools

include

lud0v1c...-bowtie-2.2.4

bin

bowtie2



/home/rekado/.guix-profile

/var/guix/...

guix-profile

42

43

/gnu/store

hscq14x...-profile

bin

samtools

bowtie2

rhrdst11m...-samtools-1.2

bin

samtools

include

lud0v1c...-bowtie-2.2.4

bin

bowtie2

z3braf1sh...-profile

bin

samtools

```
(define glpk
  (package
    (name "glpk")
    (version "4.57")
    (source
      (origin
        (method url-fetch)
        (uri (string-append "mirror://gnu/glpk/glpk-"
                             version ".tar.gz"))
        (sha256 (base32 "0p17jjlixd2...")))))
    (build-system gnu-build-system)
    (inputs
      `(("gmp" ,gmp)))
    (arguments
      `(#:configure-flags '("--with-gmp")))
    (home-page "http://www.gnu.org/software/glpk/")
    (synopsis "GNU Linear Programming Kit")
    (description
      "GLPK is a C library for solving large-scale linear
      programming (LP), mixed integer programming (MIP), and
      other related problems ...")
    (license gpl3+)))
```

Learn more!

#guix on irc.freenode.net

<http://gnu.org/s/guix>

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