

Your distro is a Scheme library

Hacking your way through the GNU Guix API

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```
(operating-system
  (host-name "pluto")
  (timezone "Europe/Paris")
  (locale "en_US.utf8")

  (bootloader (grub-configuration
    (device "/dev/sda")))

  (mapped-devices (list (mapped-device
    (source "/dev/sda3")
    (target "home")
    (type "file-system-mapping")))

  (file-systems (cons* (file-system
    (device "root")
    (title 'label)
    (mount-point "/")
    (type "ext3"))
    (file-system
    (device "/dev/mapper/home")
    (mount-point "/home")
    (type "ext3"))
```

The Emacs of distros

When large numbers of nontechnical workers are using a programmable editor, they will be tempted constantly **to begin programming** in the course of their day-to-day lives. This should contribute greatly to computer literacy [...]

– Stallman, 1981

user freedom =

access + empowerment

```
$ guix package -i emacs guile
```

?

#1. Packages & package lookup.

#2. The store.

build processes
chroot, separate UIDs

Guile Scheme

(guix packages)

(guix store)

build daemon

build processes
chroot, separate UIDs

Guile Scheme

(guix packages)

(guix store)

build daemon

RPCs



build processes
chroot, separate UIDs

Guile, make, etc.

Guile, make, etc.

Guile, make, etc.

build daemon

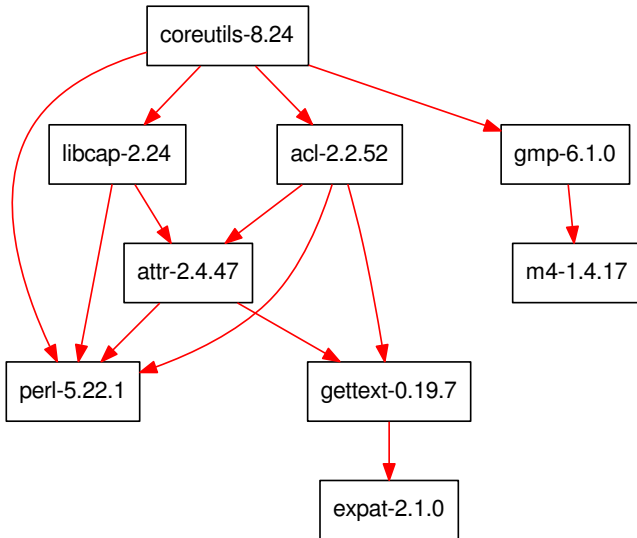
Guile Scheme

(guix packages)

(guix store)

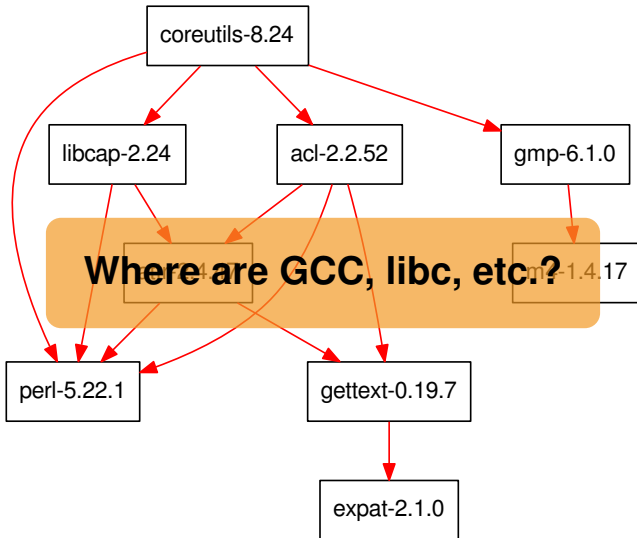
RPCs

#3. From packages to derivations.



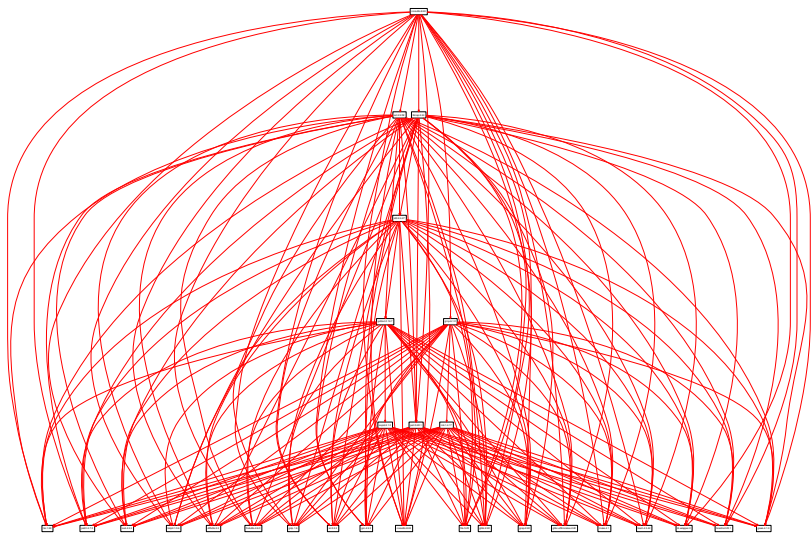
9 nodes

`guix graph --type=package coreutils`



9 nodes

`guix graph --type=package coreutils`



28 nodes

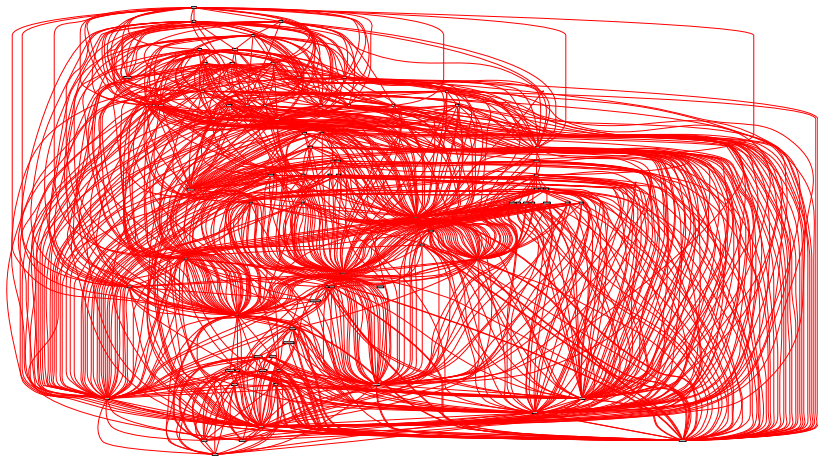
`guix graph --type=bag-emerged coreutils`



What about the compiler's compiler, etc.?

28 nodes

`guix graph --type=bag-emerged coreutils`



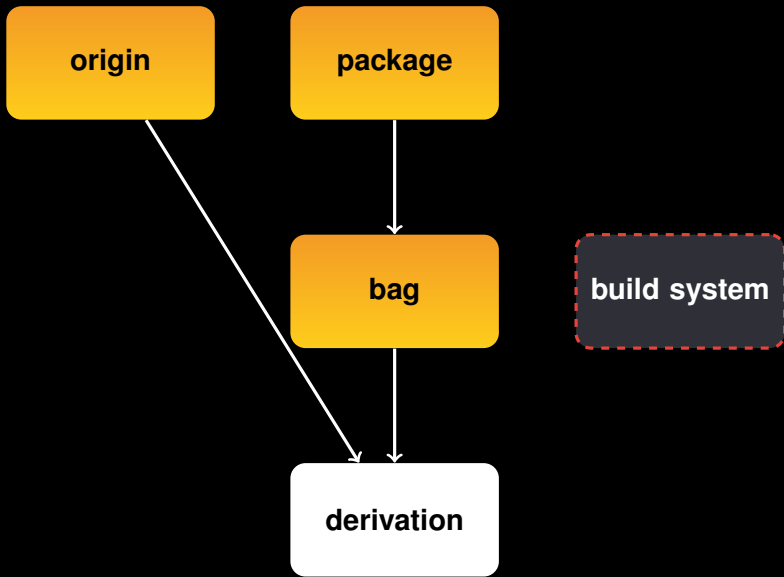
82 nodes

`guix graph --type=bag coreutils`

(too big)

383 nodes

```
guix graph --type=derivation coreutils
```



#4. “Staging”: hosting
build-side code.

build processes
chroot, separate UIDs

Guile, make, etc.

Guile, make, etc.

Guile, make, etc.

build daemon

Guile Scheme

(guix packages)

(guix store)

RPCs

#5. Operating system!



GuixSD

`ludo@gnu.org`

`http://gnu.org/software/guix/`

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