

# Navigating the Guix Subsystems

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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.

#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**

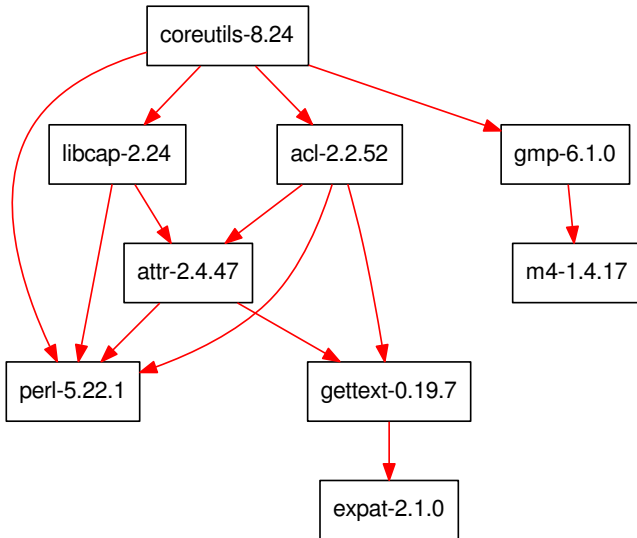
**Guile Scheme**

(guix packages)

(guix store)

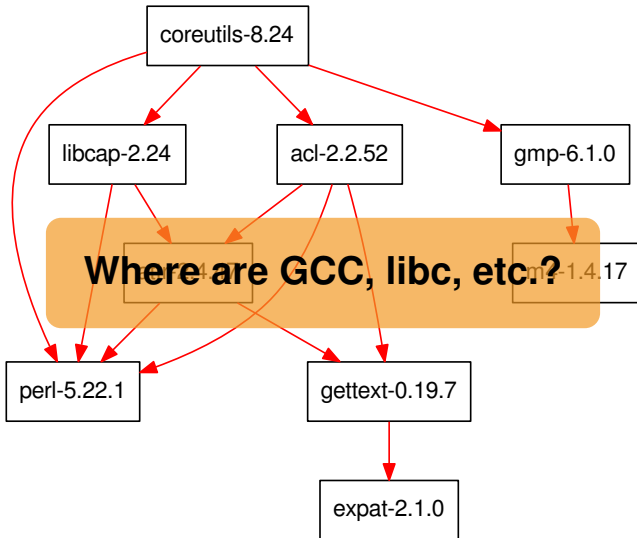
RPCs

#3. From packages to derivations.



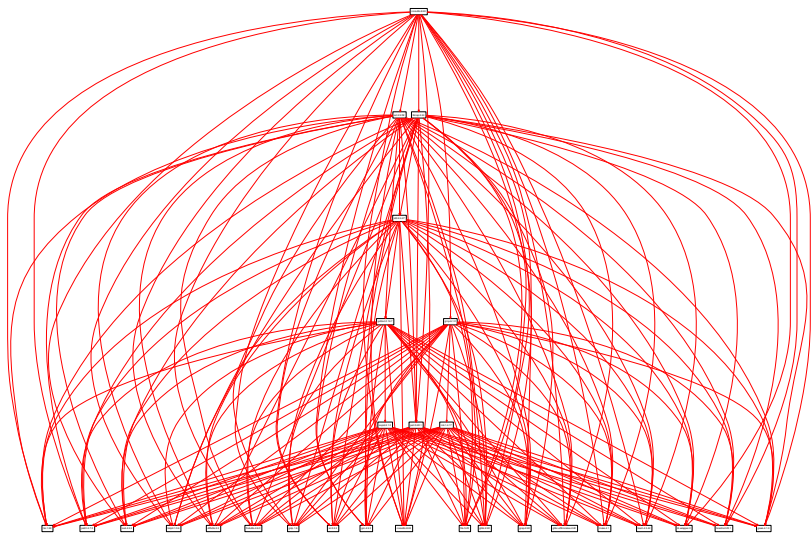
**9 nodes**

`guix graph --type=package coreutils`



**9 nodes**

`guix graph --type=package coreutils`



**28 nodes**

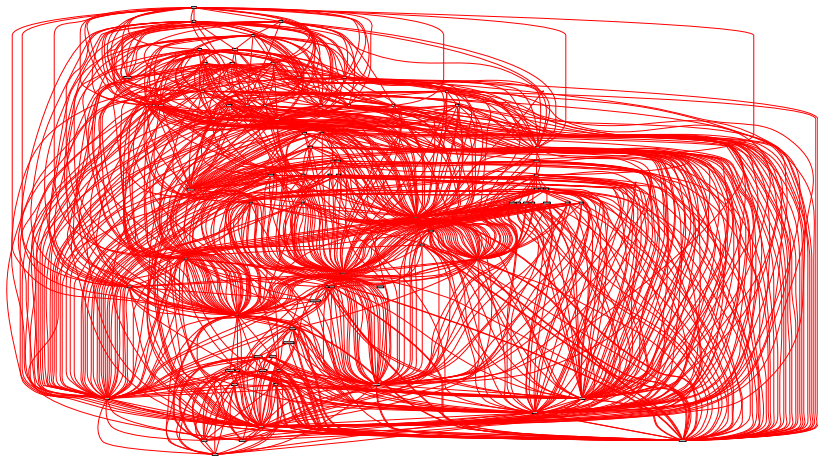
`guix graph --type=bag-emerged coreutils`



**What about the compiler's compiler, etc.?**

**28 nodes**

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



**82 nodes**

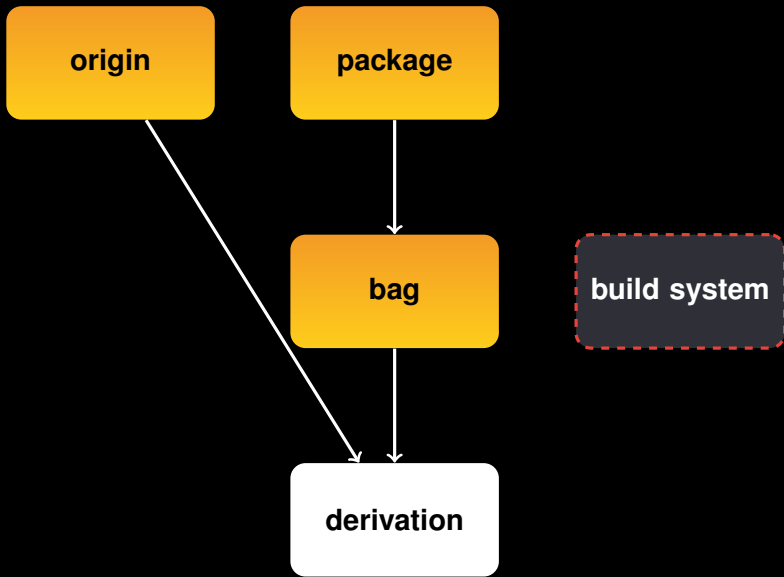
`guix graph --type=bag coreutils`



(too big)

**383 nodes**

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



## #4. Operating system!

**Linux-libre**

**Linux-libre**



**initial RAM disk**

**Linux-libre**



**initial RAM disk**

**Guile**

**Linux-libre**



**initial RAM disk**



**PID 1: GNU Shepherd**  
services...

Guile

**Linux-libre**



**initial RAM disk**



**PID 1: GNU Shepherd**  
services...

Guile

Guile



**Linux-libre**



**initial RAM disk**

Guile



**PID 1: GNU Shepherd**  
services...

Guile



**applications**



**GuixSD**

`ludo@gnu.org`

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

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