Navigating the Guix Subsystems

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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

build daemon

Guile Scheme
(guix packages)
(guix store)

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.
guix graph --type=package coreutils

9 nodes
Where are GCC, libc, etc.?
What about the compiler’s compiler, etc.?
82 nodes

guix graph --type=bag coreutils
#4. Operating system!
Linux-libre

initial RAM disk
Linux-libre

initial RAM disk

Guile
Linux-libre

initial RAM disk

PID 1: GNU Shepherd services...
Linux-libre

- initial RAM disk
- PID 1: GNU Shepherd services...
- Guile
- Guile
Linux-libre

initial RAM disk

PID 1: GNU Shepherd services...

applications

Guile

Guile