


GNU Guix's Take on a New Approach to Software Distribution

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3 February 2019

Slackware | Debian | Red Hat



modules | Spack | EasyBuild | VirtualEnv



Ansible | Puppet | Propellor

pip | Cabal | Cargo | CONDA | Gradle

A dark, stormy background with several bright, jagged lightning bolts striking across the frame. The bolts are white and yellow, creating a high-contrast, dramatic effect against the dark purple and blue sky.

Flatpak | snap | Docker | Vagrant

Are distros doomed?

Are distros doomed?

Yes!

Are distros doomed?

Yes!

No!

A stylized, 3D-effect letter 'v' composed of two overlapping, curved bands. The bands have a color gradient from bright yellow at the top to a reddish-orange at the bottom. The 'v' is positioned to the left of the word 'Guix'.

Guix

```
guix package -i gcc-toolchain openmpi hwloc
```

```
eval 'guix package --search-paths=prefix'
```

```
guix package --roll-back
```

```
guix package --profile=./experiment \  
-i gcc-toolchain@5.5 hwloc@1
```

```
guix package --manifest=my-packages.scm
```

```
(specifications->manifest  
  '("gcc-toolchain" "emacs"  
    "guile" "emacs-geiser"))
```

```
bob@laptop$ guix package --manifest=my-packages.scm
bob@laptop$ guix describe
guix cabba9e
  repository URL: https://git.sv.gnu.org/git/guix.git
  commit: cabba9e15900d20927c1f69c6c87d7d2a62040fe
```

```
bob@laptop$ guix package --manifest=my-packages.scm
bob@laptop$ guix describe
guix cabba9e
repository URL: https://git.sv.gnu.org/git/guix.git
commit: cabba9e15900d20927c1f69c6c87d7d2a62040fe
```

```
alice@supercomp$ guix pull --commit=cabba9e
alice@supercomp$ guix package --manifest=my-packages.scm
```

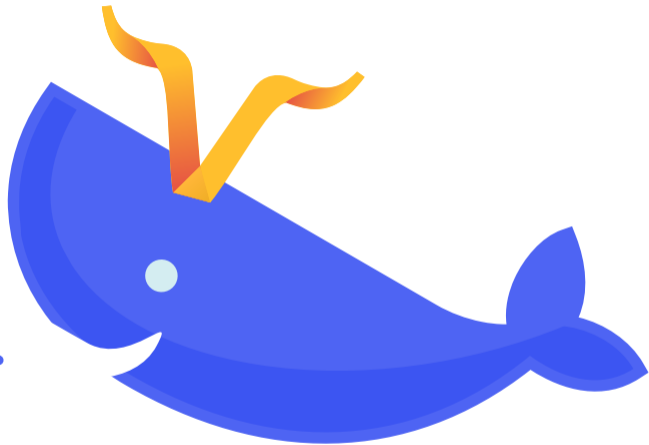
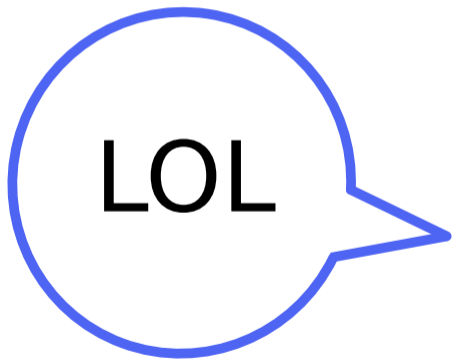
guix environment ...

```
$ guix pack \  
python python-numpy  
...  
/gnu/store/...-pack.tar.gz
```



```
$ guix pack --relocatable \  
python python-numpy  
...  
/gnu/store/...-pack.tar.gz
```

```
$ guix pack --format=docker \  
python python-numpy  
...  
/gnu/store/...-docker-image.tar.gz
```



```
(operating-system
  (host-name "schememachine")
  (timezone "Europe/Brussels")
  (locale "fr_BE.utf8")
  (bootloader (bootloader-configuration
                (bootloader grub-efi-bootloader)
                (target "/boot/efi")))
  (file-systems (cons (file-system
                       (device (file-system-label "my-root"))
                       (mount-point "/")
                       (type "ext4"))
                      %base-file-systems))
  (users (cons (user-account
                 (name "charlie")
                 (group "users")
                 (home-directory "/home/charlie"))
                %base-user-accounts))
  (services (cons* (service dhcp-client-service-type)
                   (service openssh-service-type)
                   %base-services)))
```

```
$ guix system build config.scm
```

```
...
```

```
$ guix system vm config.scm
```

```
...
```

```
$ guix system container config.scm
```

```
...
```

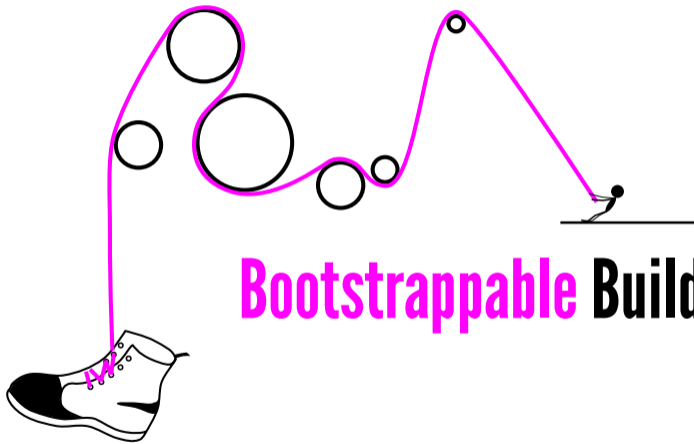
```
$ guix system reconfigure config.scm
```

```
...
```

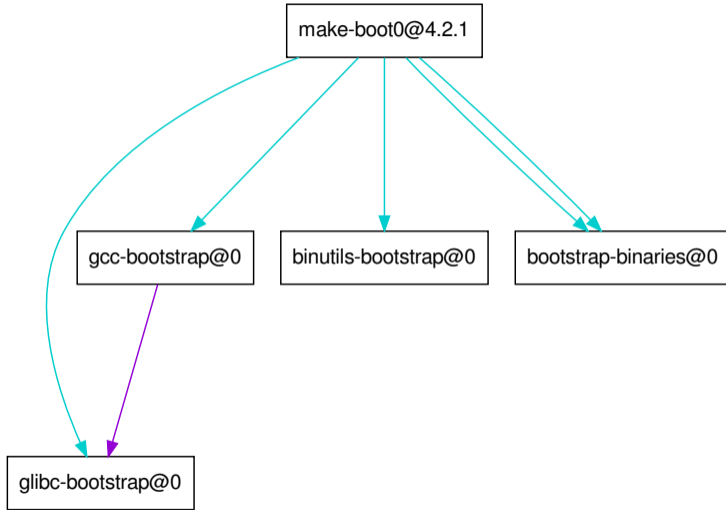


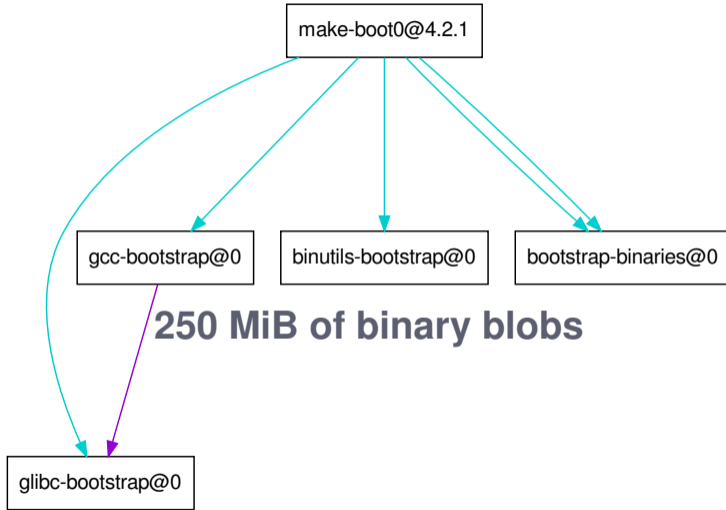
**Reproducible
Builds**

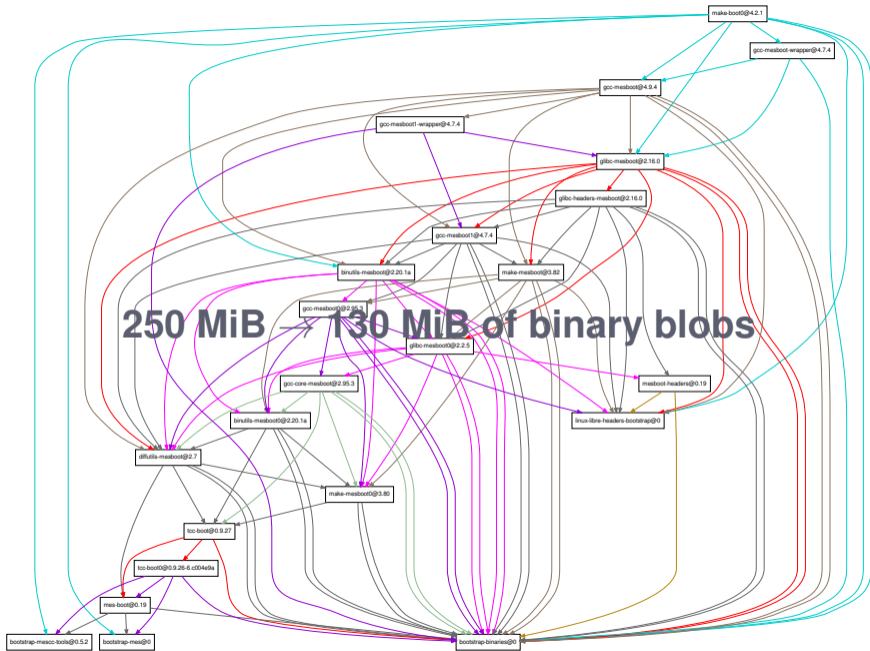
```
$ guix challenge --substitute-urls="https://ci.guix.info https://example.org"
/gnu/store/...-openssl-1.0.2d contents differ:
  local hash: 0725122...
  http://ci.guix.info/...-openssl-1.0.2d: 0725122...
  http://example.org/...-openssl-1.0.2d: 1zy4fma...
/gnu/store/...-git-2.5.0 contents differ:
  local hash: 00p3bmr...
  http://ci.guix.info/...-git-2.5.0: 069nb85...
  http://example.org/...-git-2.5.0: 0mdqa9w...
/gnu/store/...-pius-2.1.1 contents differ:
  local hash: 0k4v3m9...
  http://ci.guix.info/...-pius-2.1.1: 0k4v3m9...
  http://example.org/...-pius-2.1.1: 1cy25x1...
```

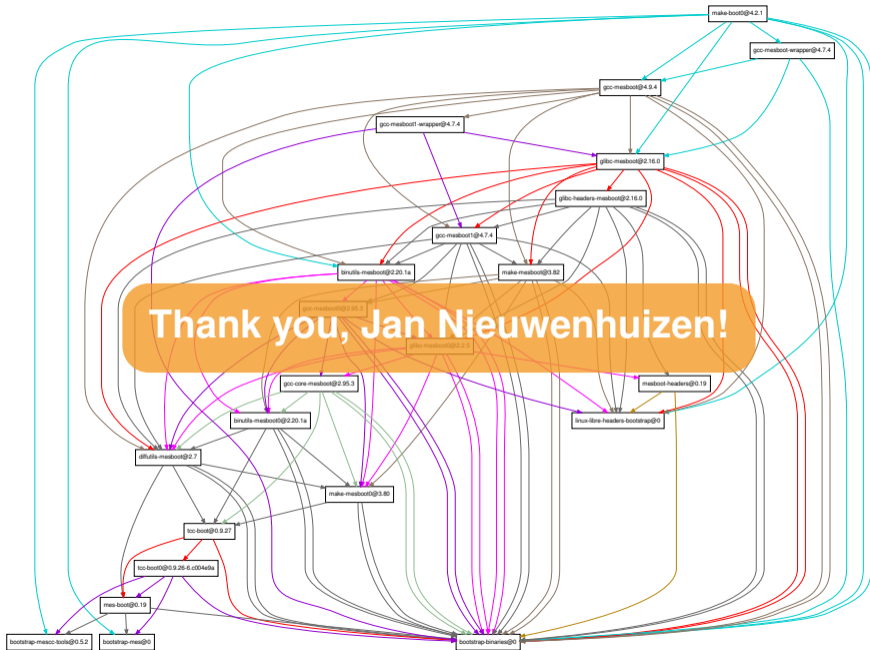


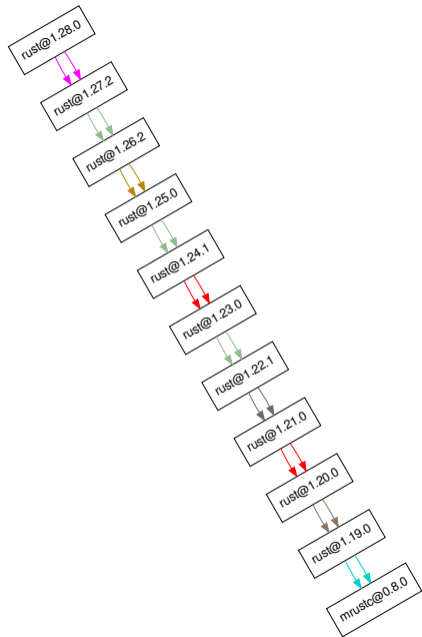
Bootstrappable Builds

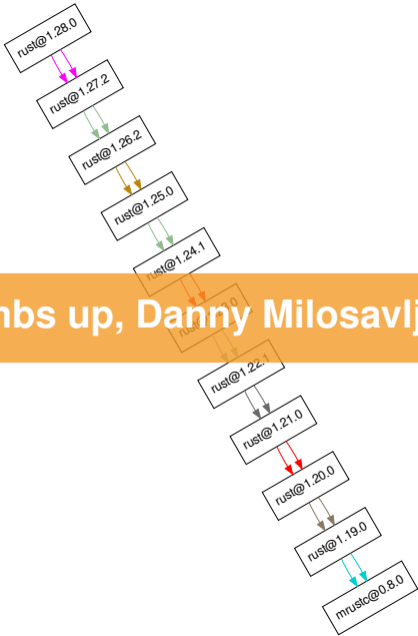




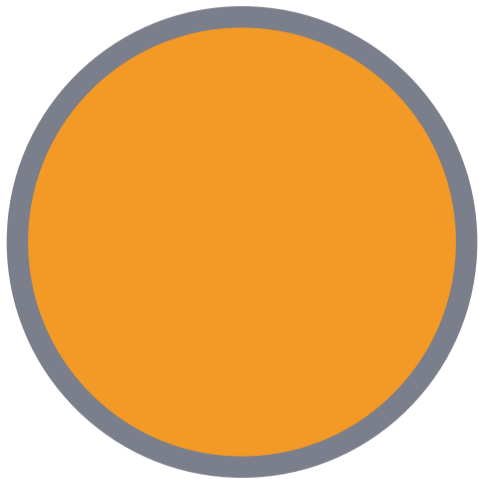








Thumbs up, Danny Milosavljevic!





1.0!



1.0!*

* almost

Wrap-up.

1. transactional **package manager**
2. software **environment manager**
3. **container provisioning** tools
4. whole system **configuration management**

1. transactional **package manager**
2. software **environment manager**
3. **container provisioning** tools
4. whole system **configuration management**
5. **Guix cares about your freedom & security!**



Guix

`ludo@gnu.org`

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

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Docker whale image by Ricardo Wurmus.

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2018-05-18_18_27_24_Low_stratiform_clouds_(base_near_3,000_feet_AGL)_with_wavy,_bumpy_base_viewed_from_Mercer_County_Route_622_(North_Olden_Avenue)_in_Ewing_Township,_Mercer_County,_New_Jersey.jpg.

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