

Guix : Déploiement logiciel reproductible pour recherche reproductible

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Café Guix

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Inria

```
bob@laptop$ guix describe
```

```
guix cabba9e
```

```
repository URL: https://git.sv.gnu.org/git/guix.git
```

```
commit: cabba9e15900d20927c1f69c6c87d7d2a62040fe
```

```
bob@laptop$ guix shell --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 shell --manifest=my-packages.scm
```

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



travel in space *and* time!

Reproducible environments : 2 files, 2 commands

1. `guix describe -f channels > channels.scm`
2. `guix time-machine -C channels.scm -- \`
`shell -m manifest.scm`


```
(define python-scikit-learn
  (package
    (name "python-scikit-learn")
    (home-page "https://github.com/scikit-learn/scikit-learn")
    (source (origin
      (method git-fetch)
      (uri (git-reference
        (url home-page)
        (commit "2f30ff07a")
        (recursive? #t)))
      (sha256
        (base32
          "106rf402cvfdhc2yf...")))))
  ...))
```



Software Heritage



<https://guix.gnu.org/en/blog/2019/connecting-reproducible-deployment-to-a-long-term-source-code-archive/>

```
$ guix lint -c archival python-scikit-learn  
scheduled Software Heritage archival
```



<https://guix.gnu.org/sources.json>



Software Heritage

```
(package
  (name "openblas")
  (version "0.3.9")
  (source
    (origin
      (method url-fetch)
      (uri (string-append "https://sourceforge.net/openblas/"
                          "/OpenBLAS%20" version " .tar.gz "))
      (sha256
        (base32
          "14iz9xnrb9x..."))))
  ...)))
```

56% of package source code
distributed as "tarballs"



```
(package
  (name "openblas")
  (version "0.3.9")
  (source
    (origin
      (method url-fetch)
      (uri (string-append "https://sourceforge.net/openblas/"
                          "/OpenBLAS%20" version " .tar.gz "))
      (sha256
        (base32
          "14iz9xnrb9x..."))))
  ...))
```

56% of package source code distributed as "tarballs"

How do we reconstruct tarballs from archived content?

tar.gz

```
graph LR; A((tar.gz)) --> B[Disarchive  
disassemble];
```

A diagram on a teal background. On the left, a white circle with an orange border contains the text 'tar.gz'. An orange arrow points from the right side of this circle to the left side of a larger white rounded rectangle with an orange border. Inside this rectangle, the words 'Disarchive' and 'disassemble' are stacked vertically in a black, monospaced font.

Disarchive
disassemble



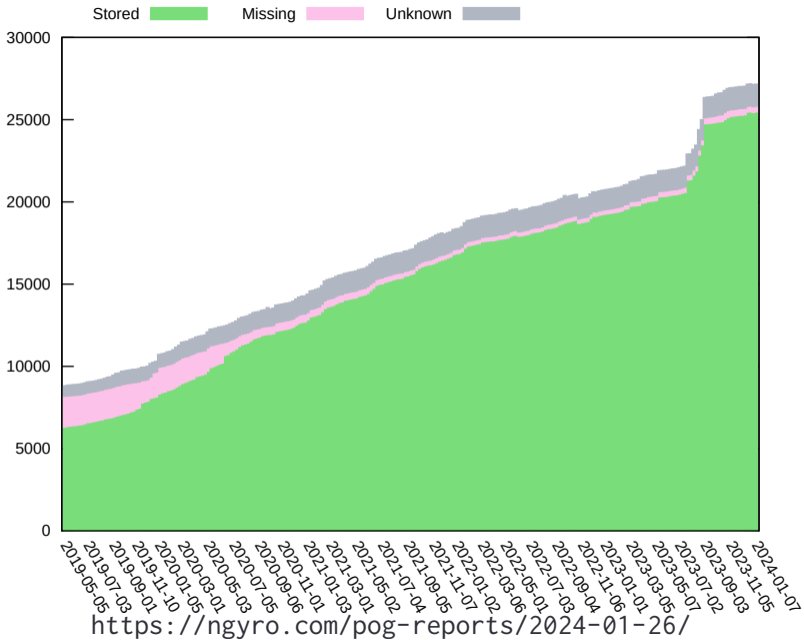


Disarchive
assemble

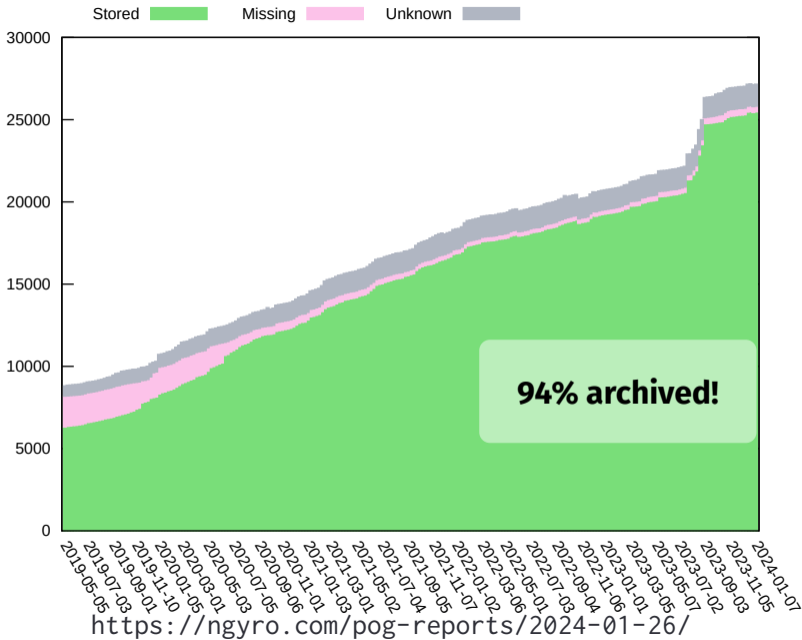
tarball metadata

<https://disarchive.guix.gnu.org>

Report on the Preservation of Guix



Report on the Preservation of Guix



**Not only is it archived,
it can also be recovered.**

```
GUIX_DOWNLOAD_METHODS=swh \
  guix build --source --check \
  python-scikit-learn
```

```
GUIX_DOWNLOAD_METHODS=swh \
  guix build --source --check \
  python-scikit-learn
```

```
GUIX_DOWNLOAD_METHODS=disarchive \
  guix build --source --check \
  hello
```

Quiz!

```
guix download \  
  --commit=2633763362586903cf6506f4c4d708727a981025 \  
  http://example.org/not-found
```

?

Hot topics

- ▶ **replicating** the Disarchive database
- ▶ archiving source from **past Guix revisions**
- ▶ improve **source recovery tooling**
- ▶ ...
- ▶ getting to **100% Software Heritage coverage**

Special thanks

- ▶ Timothy Sample
- ▶ Simon Tournier
- ▶ Antoine Eiche
- ▶ ... and the Software Heritage team!

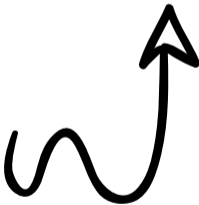


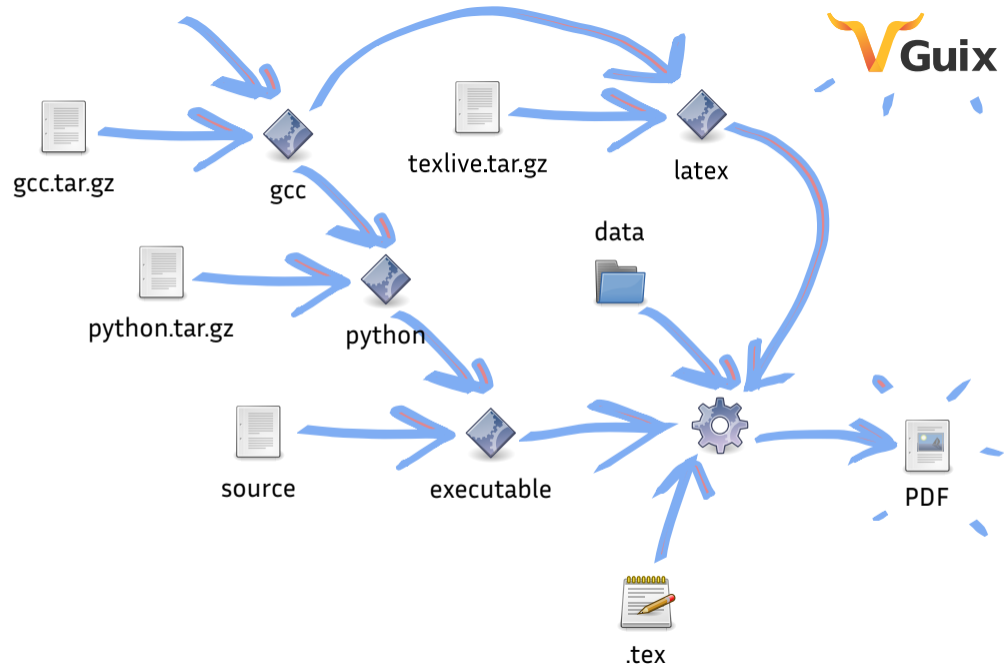
Software Heritage



 **Guix**

The Re**Science** Journal





Deployment tools should help
research *improve*
provenance tracking,
reproducibility,
and **experimentation.**



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<https://hpc.guix.info>

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