

Deep dive into Verdaccio

A lightweight Node.js registry

NodeTLV - 2022

Juan Picado

Front-End Engineer at **mobile.de** - [Adevinta](#)
(Berlin, Germany)

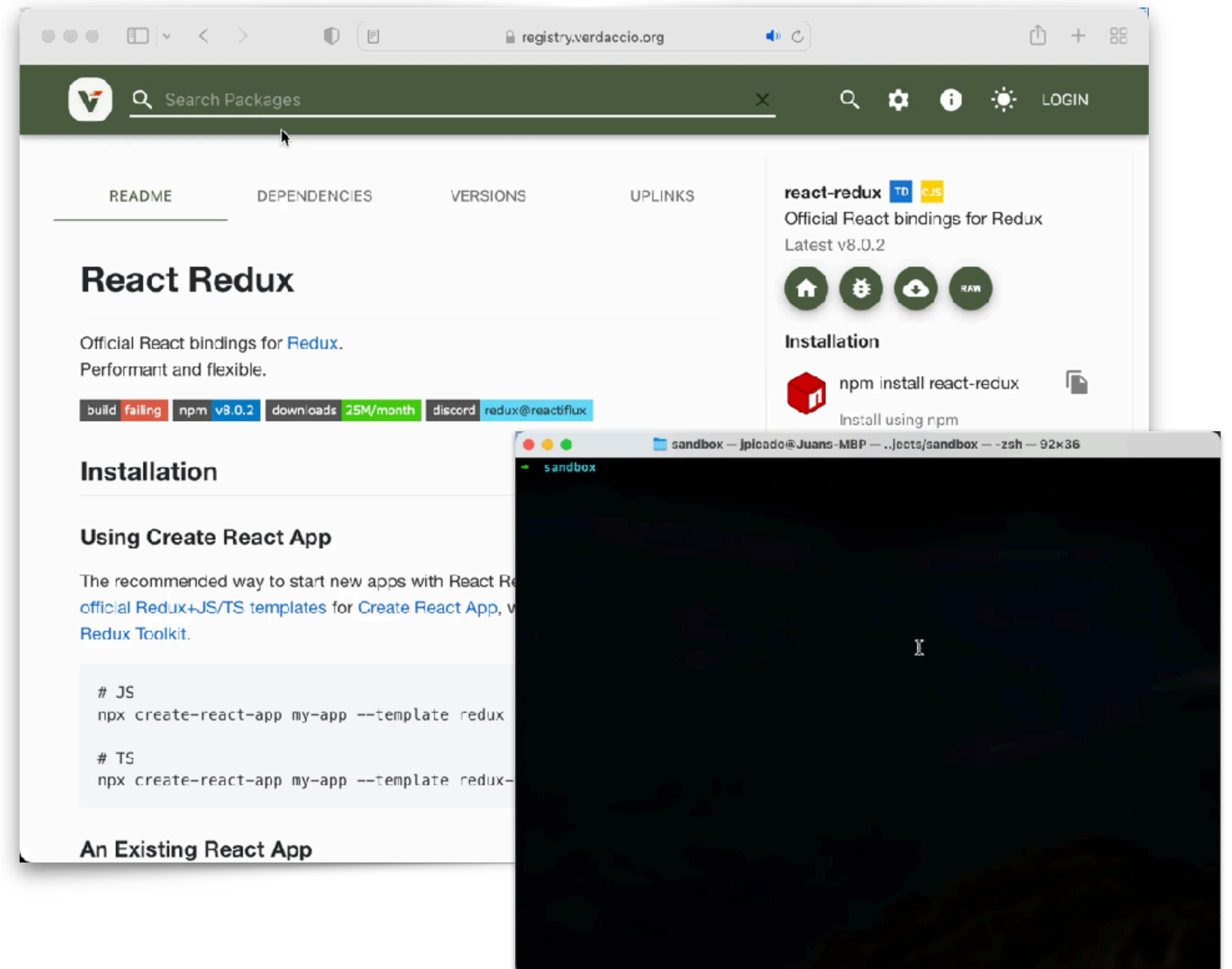
Open Source Free Time Developer at **Verdaccio**



What's Verdaccio?



- Publish Private Packages
- Proxy from multiples registries
- Zero Dependencies
- Web User Interface Included
- Pluggable web application
- Lightweight (~3s to start up)





npm install
npm publish
npm profile
npm search
npm token
npm star
npm stars
npm audit
npm login
npm logout
npm ping
npm whoami
npm dist-tag
npm audit
npm deprecate
+ org specifics



pnpm install
pnpm publish
pnpm profile
pnpm search
pnpm token
pnpm star
pnpm stars
pnpm audit
pnpm login
pnpm logout
pnpm ping
pnpm whoami
pnpm dist-tag
pnpm audit
pnpm deprecate



yarn install
yarn npm publish
yarn npm login
yarn npm logout
yarn npm whoami
yarn npm publish
yarn npm info
yarn npm tag
yarn npm audit
yarn search



```
npm install --global verdaccio  
pnpm install --global verdaccio  
yarn global add verdaccio
```

~4 million/year download average



```
# docker
docker run -it --rm --name verdaccio -p 4873:4873 verdaccio/verdaccio

# helm
helm repo add verdaccio https://charts.verdaccio.org
helm install npm verdaccio/verdaccio
```

~83 million docker pull

Fork of Sinopia



jpicado@Juans-MacBook-Pro — ..dbox/test_npm

→ test_npm

jpicado@Juans-MacBook-Pro — ~

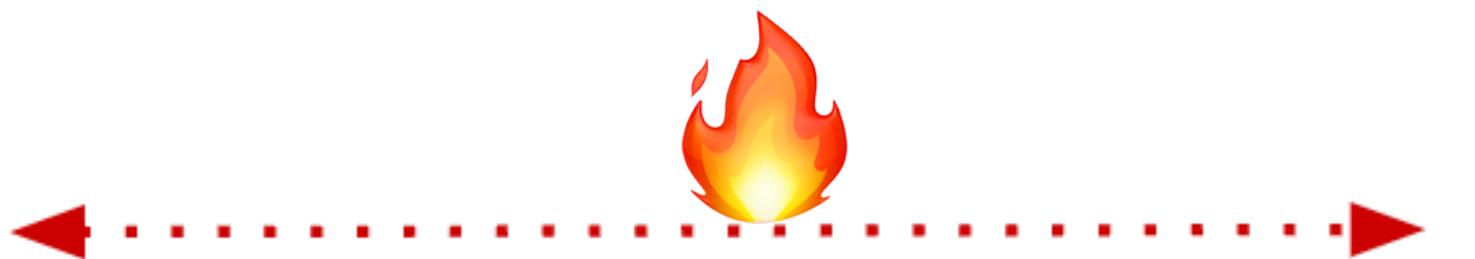
Why Verdaccio?



70-90% of our code is
open source

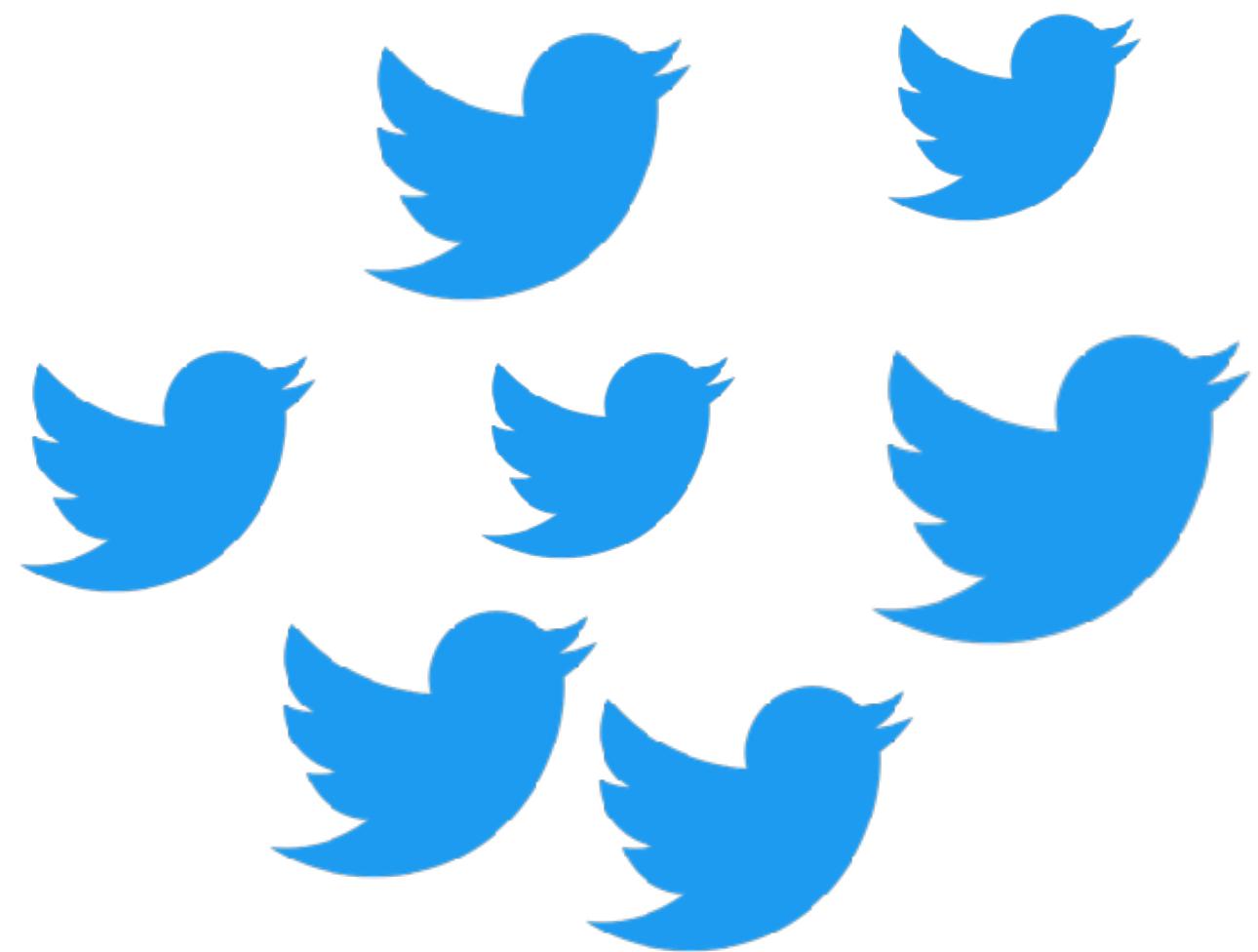
<https://www.linuxfoundation.org/blog/a-summary-of-census-ii-open-source-software-application-libraries-the-world-depends-on/>

You don't have a problem until you KNOW you have it



npmjs registry





SomeAngryNodejsUser
@randomSpeakerNotesUserDoesNotExist

I cannot install packages ! :(buhhh

12:00 PM · Jun 1, 2021

...

ILoveNode.jsSoBadly
@iLoveNodeJSSoBadly

What can I do now? I cannot install packages.

12:00 PM · Jun 1, 2021

1 Retweet 4 Quote Tweets 49 Likes

...

AngryNodejsUser
@randomSpeakerNotesUserDoesNotExist

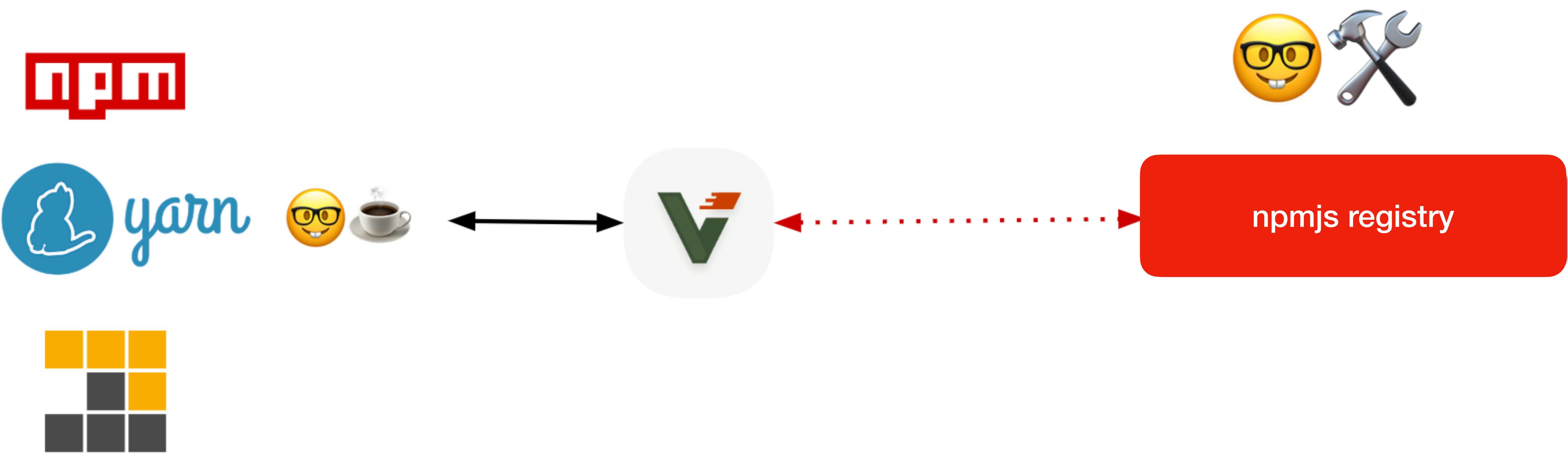
Npm is down !!! I cannot work :-)

12:00 PM · Jun 1, 2021

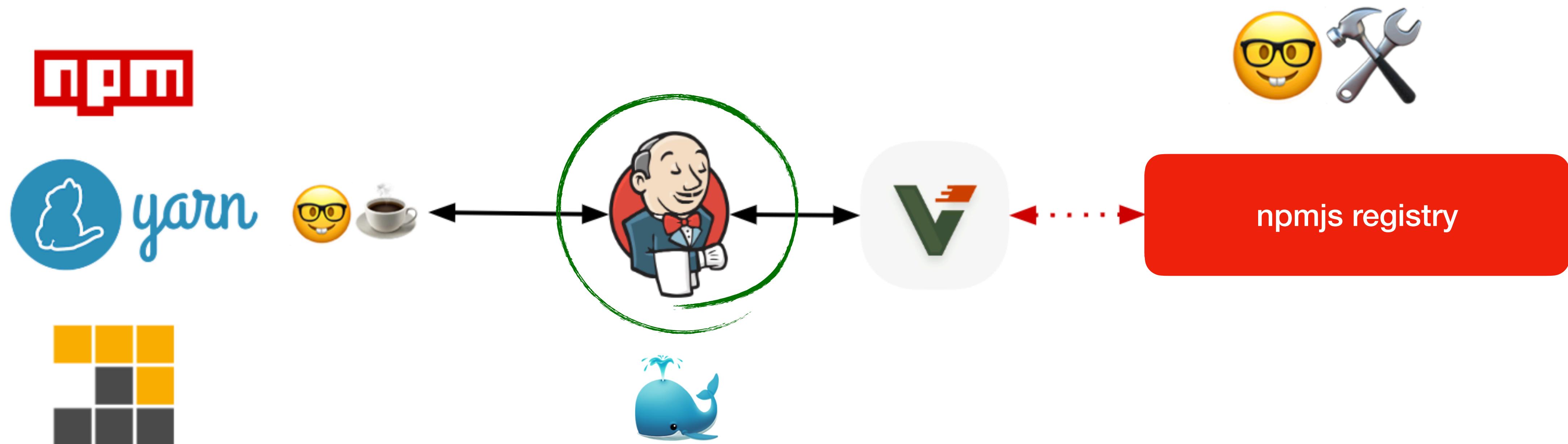
3 Likes

...

Using a proxy registry for caching should be mandatory on development workflows



Using a proxy registry for caching should be mandatory on development workflows



Offline publishing as a feature

- 0 Open 4 Closed
- Can I make a fully offline repository question topic: offline-mode
#1956 by Tixxon was closed on 30 Sep 2020
- Verdaccio keeps only package.json and not package tarball issue: bug iss topic: offline-mode
#1633 by swilczek was closed on 7 Jan 2020
- Hosting in a machine which cannot connect to internet. dev_discuss outdated
#451 by sarathkcm was closed on 20 Jan 2018
- How configure verdaccio offline? outdated question topic: offline-mode
#199 by ceoaliongroo was closed on 21 May 2017

Offline registry provides opportunities for learning Node.js



rkent commented on 21 Mar 2018



I've been working on this issue recently. Our application is in a prison software teaching environment, where the students do not have access to the internet, but need to be able to run npm to install packages.

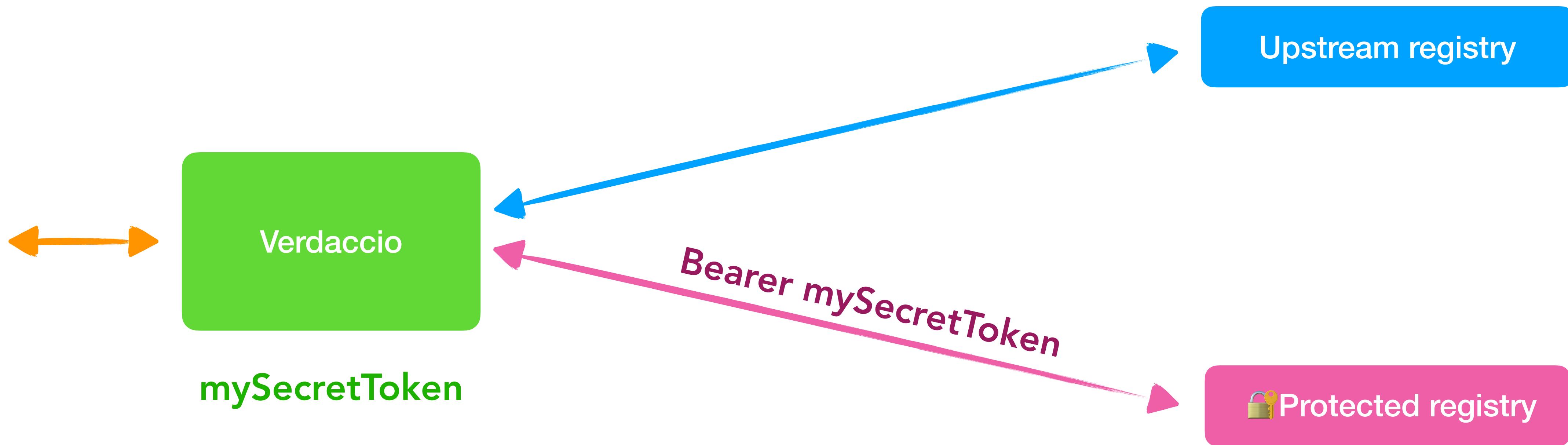
<https://github.com/Caspia/npm-populate>

Exposing sensitive data in source control systems is a recipe for a disaster



```
cat ~/.npmrc
registry=https://registry.npmjs.org/
@scope-pkg:registry=https://npm.pkg.github.com/
//npm.pkg.github.com/_authToken=ghp_xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
```

Proxying Packages





```
uplinks:  
  npmjs:  
    url: https://registry.npmjs.org/  
  private:  
    url: https://private-registry.domain.com/registry  
  auth:  
    type: bearer  
    token_env: SECRET_TOKEN
```



```
packages:  
  "@*/*":  
    access: $all  
    publish: $authenticated  
    unpublish: $authenticated  
    proxy: npmjs  
  "**":  
    access: $all  
    publish: $authenticated  
    unpublish: $authenticated
```



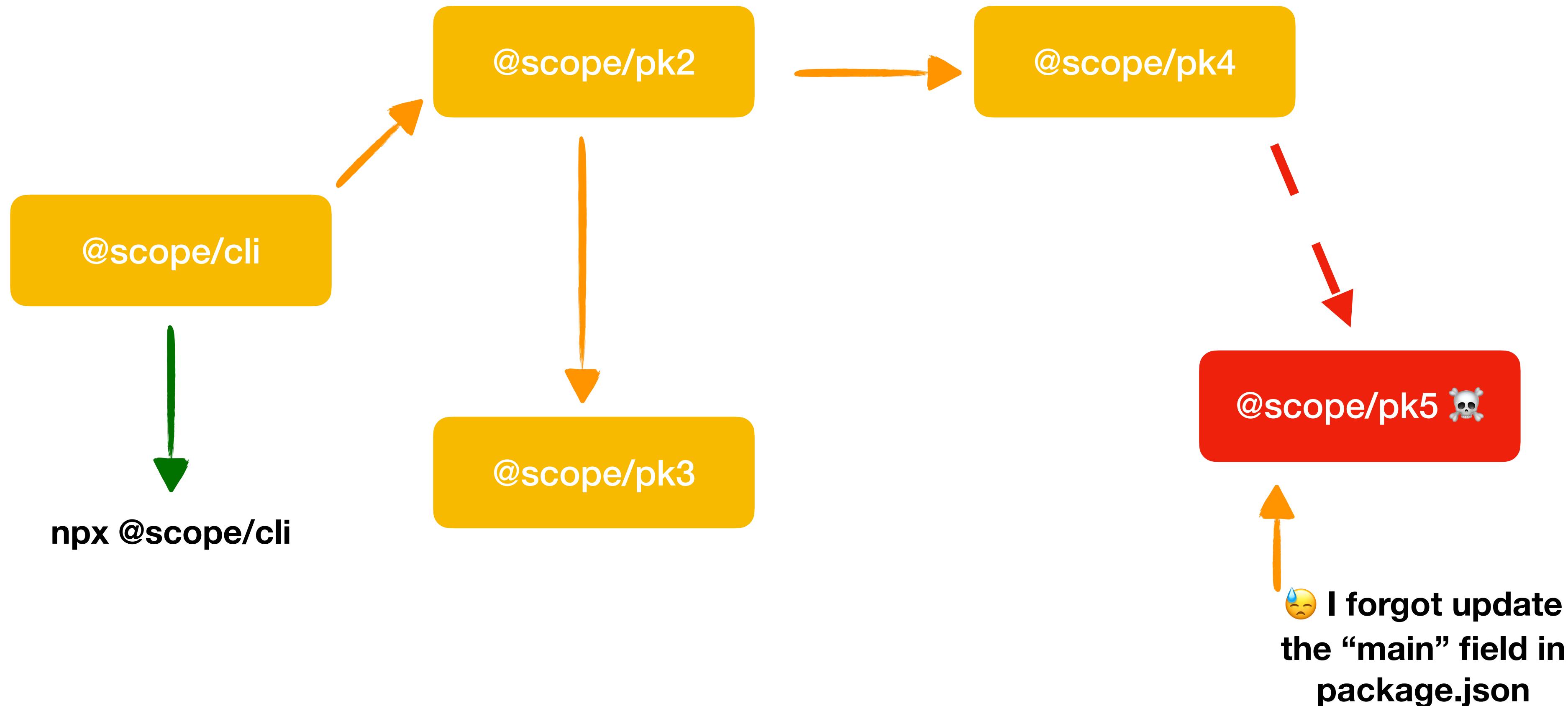
```
packages:  
  # my private packages  
  "@scope/*":  
    access: $all  
    publish: $authenticated  
    unpublish: $authenticated  
    proxy: private  
  "@*//*":  
    access: $all  
    publish: $authenticated  
    unpublish: $authenticated  
    proxy: npmjs  
  "**":  
    access: $all  
    publish: $authenticated  
    unpublish: $authenticated  
    proxy: npmjs
```



```
packages:  
  # my private packages  
  "@scope/*":  
    access: $all  
    publish: $authenticated  
    unpublish: $authenticated  
  # proxy: private  
  "@*/*":  
    access: $all  
    publish: $authenticated  
    unpublish: $authenticated  
    proxy: npmjs  
  "**":  
    access: $all  
    publish: $authenticated  
    unpublish: $authenticated  
    proxy: npmjs
```

- **Always scope** your packages
- **Only proxy** where is need it
- Protect your packages from unauthorized access with the **\$authentication** role

End to End Testing

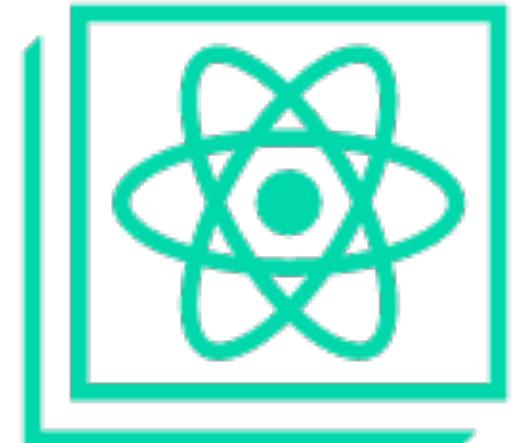




BABEL



Angular CLI



create-react-app



pnpm

Babel 7.0.0-rc.0 has incorrect peer dependency #8443

Closed

clarkdo opened this issue on 9 Aug 2018 · 3 comments · Fixed by #8445



clarkdo commented on 9 Aug 2018 · edited

...

Bug Report

Current Behavior

After installed babel 7.0.0-rc.0, there're some warning messages like:

```
warning "@babel/plugin-transform-unicode-regex@7.0.0-rc.0" has incorrect peer dependency "@babel/core@>=7.0.0-beta.50 <7.0.0-rc.0".
```

Expected behavior/code

No warning message

Possible Solution

@hzoo I think in `package.json` `peerDependencies` should add `<=7.0.0-rc.0` instead of `<7.0.0-rc.0`



4

fix peer dep [skip ci] #8445

Merged

hzoo merged 3 commits into master from peer-dep on 9 Aug 2018

Conversation 0

Commits 3

Checks 0

Files changed 99

Changes from all commits ▾ File filter ▾ Conversations ▾ ⚙

Filter changed files

codemods

babel-plugin-codemod-object-a...

package.json

babel-plugin-codemod-optional...

package.json

codemods/babel-plugin-codemod-object-assign-to-object-spread

Line	Line	Change	Text
13	13	+	"@babel/plugin-syntax-object-rest-spread": "7.0.0-rc.0"
14	14	+	,
15	15	+	"peerDependencies": {
16	-	+	"@babel/core": ">=7.0.0-beta.50 <7.0.0-rc.0"
16	+	+	"@babel/core": "^7.0.0-0"
17	17	+	,
18	18	+	"@babel/plugin-transform-object-assign": "7.0.0-0"

<https://github.com/babel/babel/pull/8445/files>

Closed

6 tasks

Smoke tests #1837

sebmck opened this issue on 26 Jun 2015 · 5 comments



motiz88 commented on 7 Oct 2016 · edited

Contributor

...

Here's a first attempt at a CI setup designed to catch failures in third-party packages ahead of a babel/babylon release: [motiz88/babel-smoke-tests](#). While implementing it I gave up on `npm link` and switched to fake-publishing patch versions of everything to a local npm proxy.

Currently (see pain point 1 below) React is the only dependent tested, but the approach applies to other packages.

Likely pain points:

1. It's slow! Will definitely need to at least test each dependent separately, I guess using a Travis build matrix + env vars. Also the Babel/Babylon builds themselves can be slimmed down.
2. The need to manually (via PR) update both the third-party projects and Babel/Babylon. The former can be Greenkeeper'd with some trickery (list them in package.json & clone the appropriate commit in a postinstall script). As for the latter - I guess we can have a bot create PRs (or commit directly to `master`?) at the end of Babel's current CI script, for each successful build of Babel's `master`.



hzoo added the **Priority: High** label on 14 Dec 2016



```
# Babel.js
function startLocalRegistry {
    # Start local registry
    tmp_registry_log=`mktemp`
    echo "Registry output file: $tmp_registry_log"
    (cd && nohup npx verdaccio@~5.1.2 -c $1 &>$tmp_registry_log &)
    YARN_IGNORE_PATH=1 yarn global add verdaccio-memory@~10.0.0
    # Wait for Verdaccio to boot
    grep -q "http address" <(tail -f $tmp_registry_log)
    ...
}
```



Lerna

Publish to local
registry

Vue

React

Prettier

Jest

CRA

`npm install --registry http://localhost:4873`



150 packages - 40,226,227 Weekly Downloads

Package Managers have workspaces features



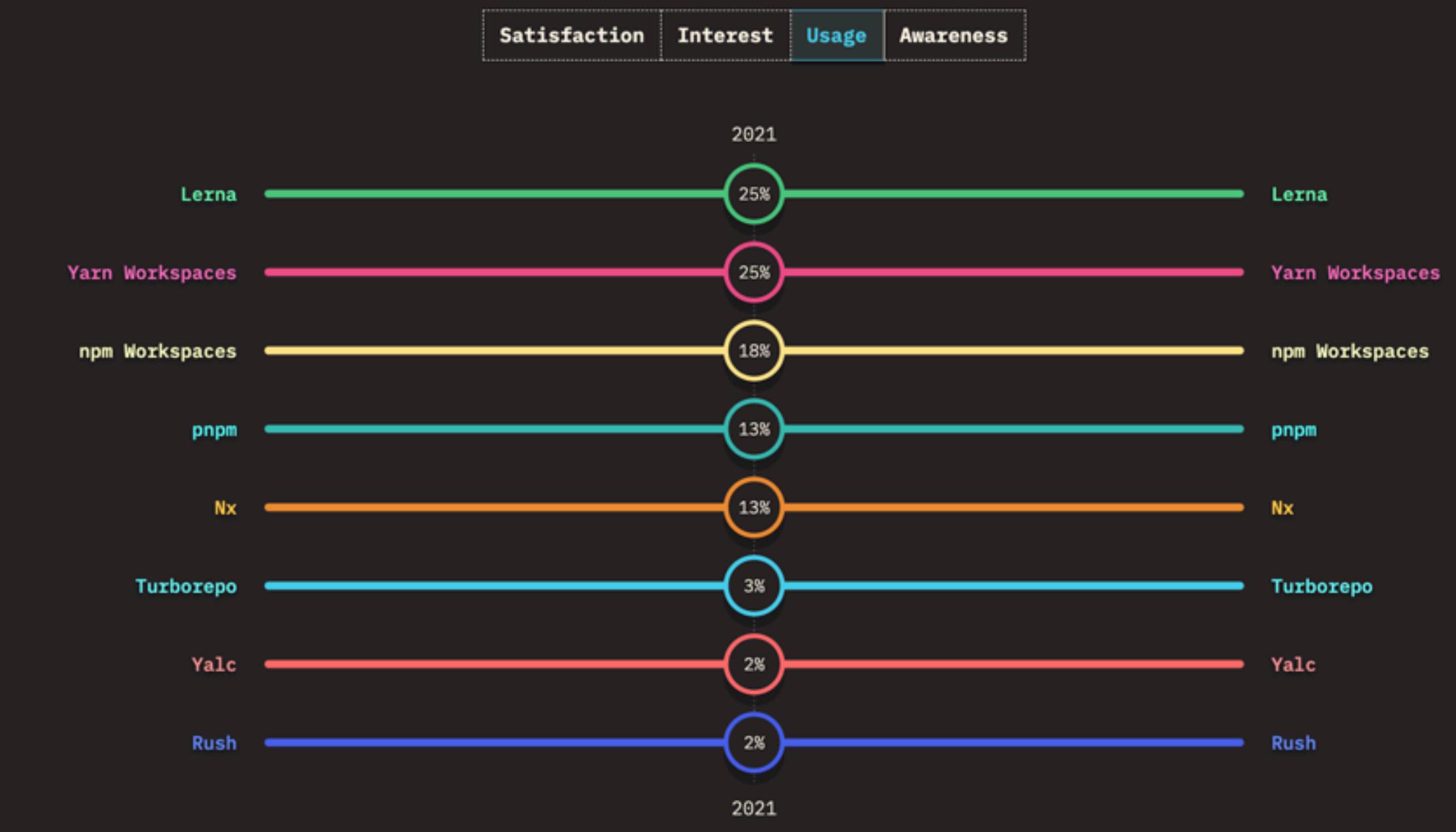
56%

MONOREPO TOOLS

Tools used to manage JavaScript monorepos.

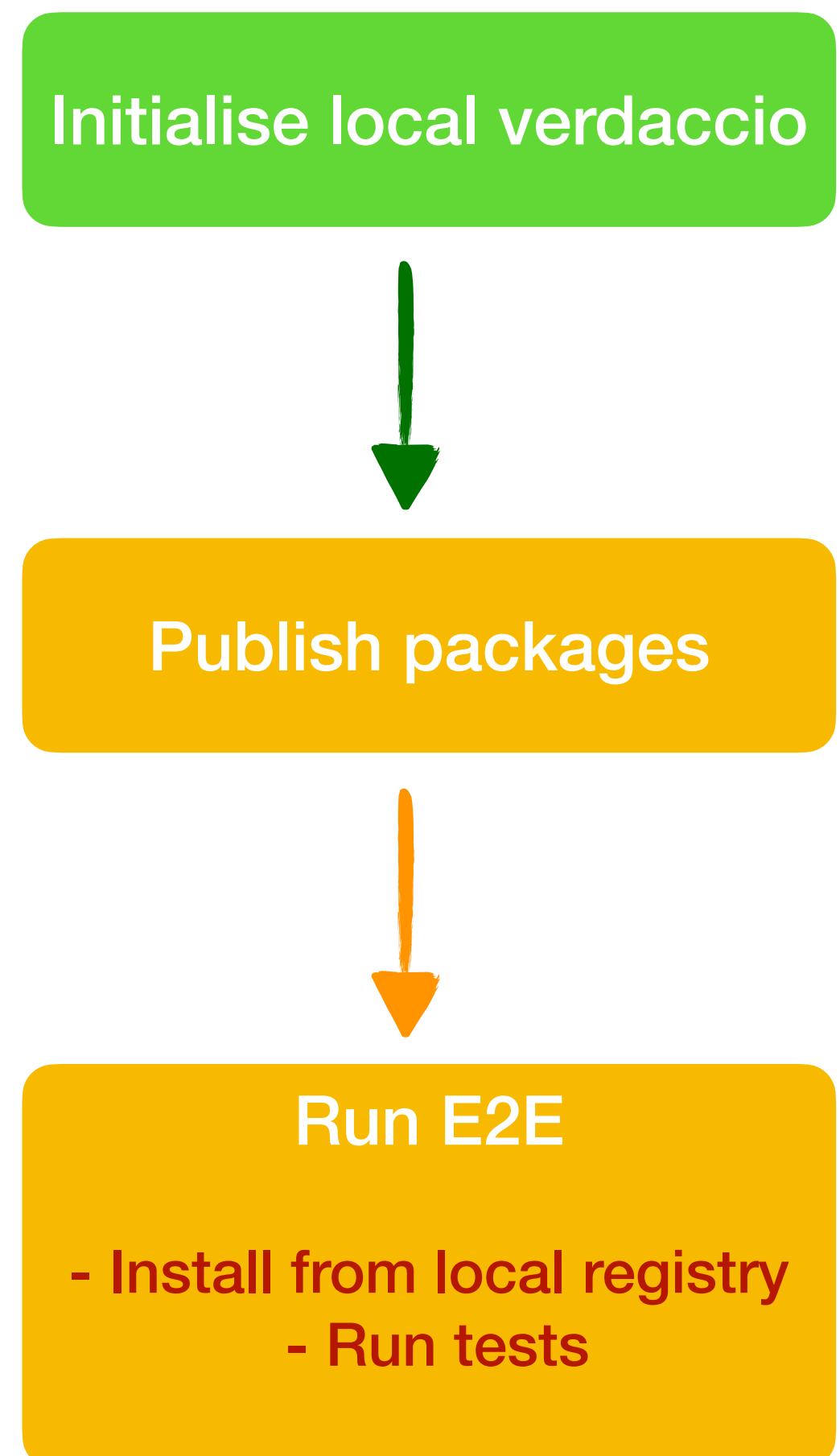
RANKINGS TONOS

Satisfaction, interest, usage, and awareness ratio rankings.



<https://2021.stateofjs.com/en-US/libraries/monorepo-tools>

E2E pattern with Verdaccio





```
import { runServer } from 'verdaccio';

const app = await runServer(); // default configuration
const app = await runServer('./config/config.yaml');
const app = await runServer({ configuration });
app.listen(4000, (event) => {
  // do something
});
```

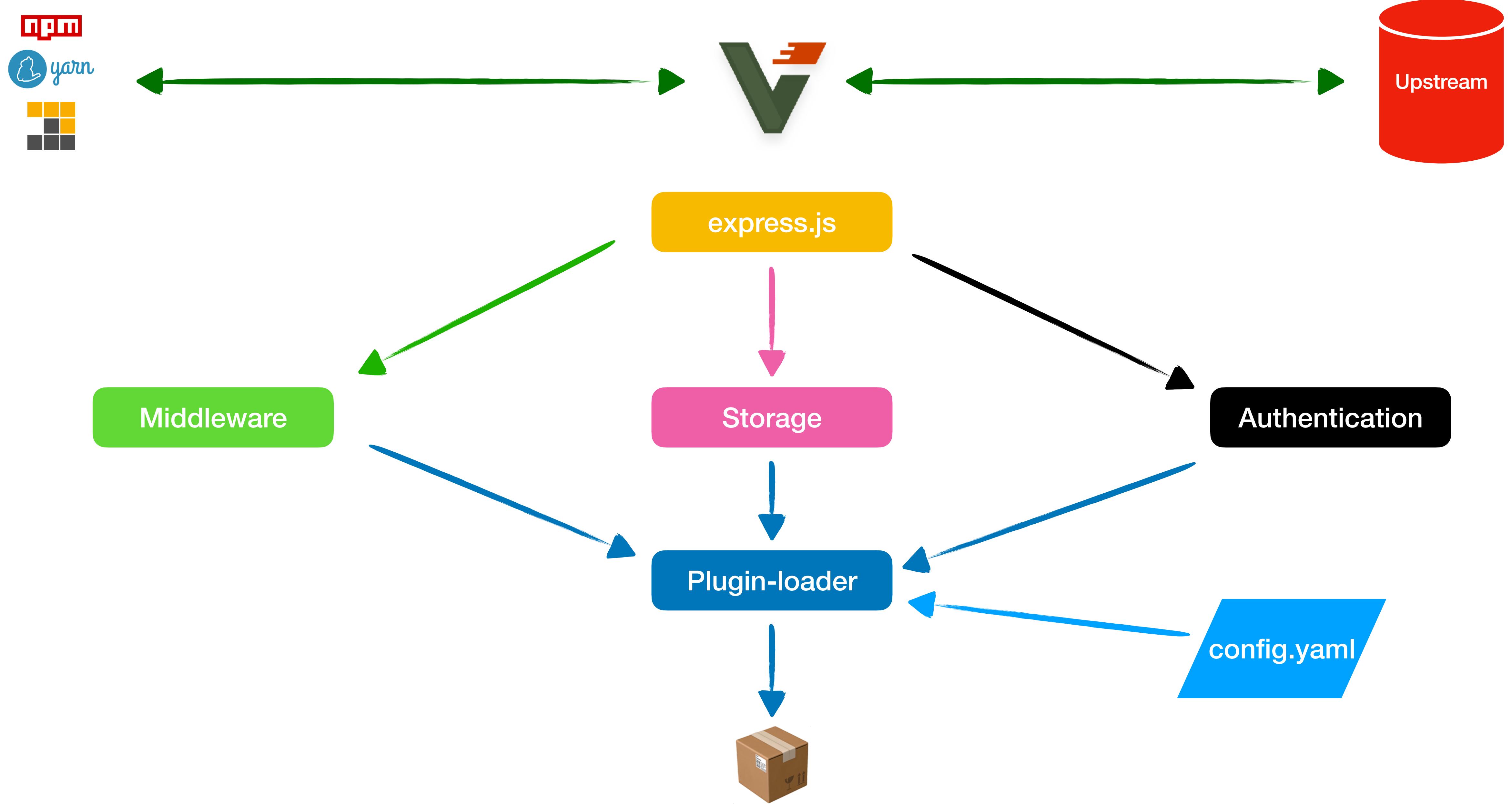
E2E with Verdaccio

<https://github.com/juanpicado/verdaccio-fork>

<https://github.com/juanpicado/e2e-ci-example-gh-actions>

<https://github.com/juanpicado/verdaccio-end-to-end-tests>

Extending Verdaccio



Middleware



```
export default class VerdaccioMiddlewarePlugin implements IPluginMiddleware<CustomConfig> {
  ...
  public register_middlewares(
    app: Application, auth: IBasicAuth<CustomConfig>, storage: IStorageManager<CustomConfig>
  ): void {
    app.use((req, res, next): void => {
      const encryptedString = auth.aesEncrypt(Buffer.from(this.foo, 'utf8'));
      res.setHeader('X-Verdaccio-Token-Plugin', encryptedString.toString());
      next();
    });
  }
  ...
}
```

Middleware

npm install –global verdaccio-awesome-middleware



```
middlewares:  
  awesome-middleware:  
    header: true  
    anotherProp: false  
  audit:  
    enabled: true
```

Middleware

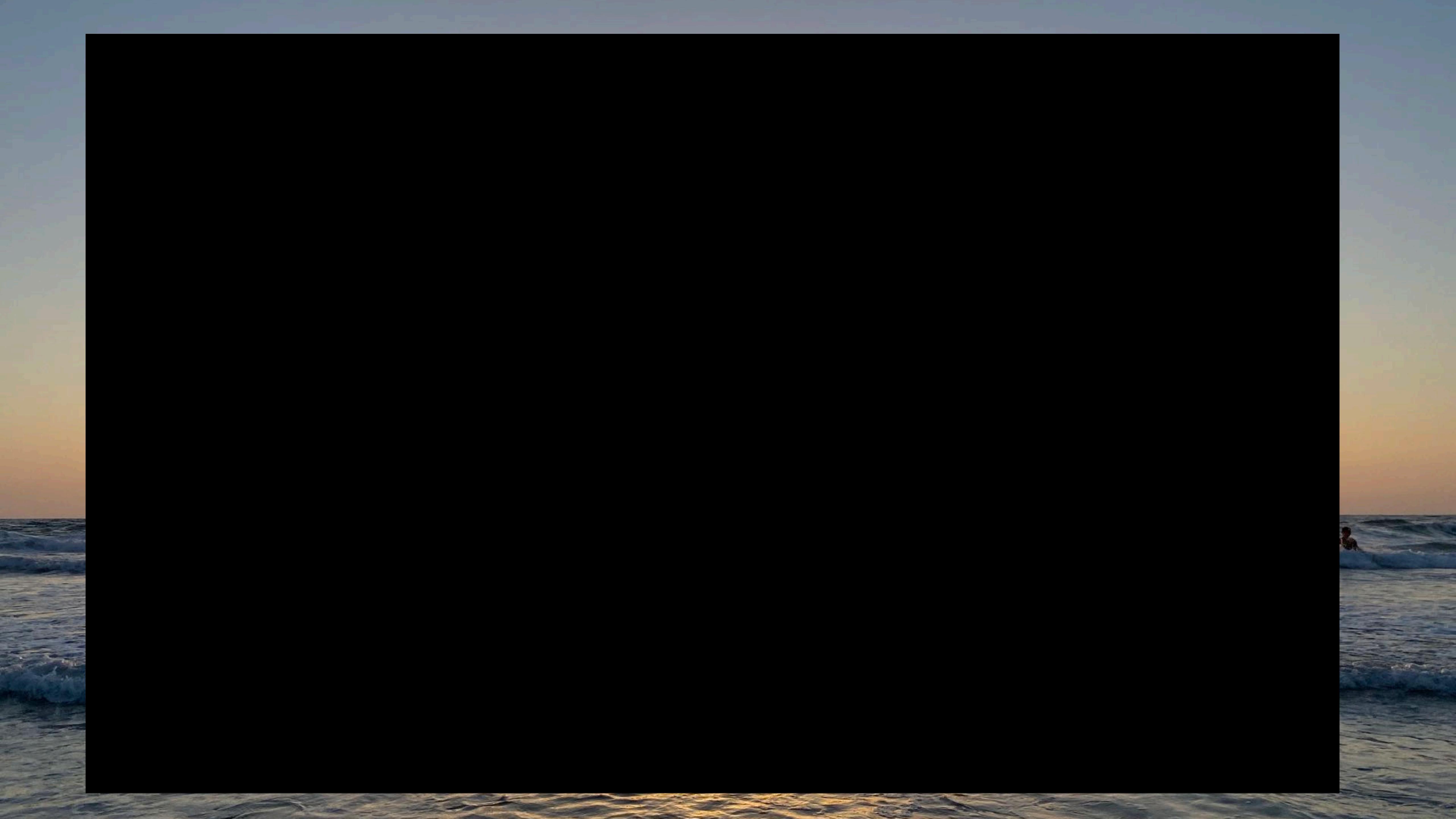
npm install —global @scope/awesome-middleware



```
middlewares:  
  '@scope/awesome-middleware':  
    header: true  
    anotherProp: false  
audit:  
  enabled: true
```

terminal window showing a dark-themed terminal session. The title bar reads "sandbox — jpicado@Juans-MBP — ..jects/sandbox — -zsh — 107x30". The terminal content shows the command "cd .." being typed. The background of the desktop is a sunset over the ocean.

```
cd ..
```



What else?

Features

- Customize the **User Interface**
- **User rate limiting**
- **Notifications** on publish (slack, etc)
- **Use JWT** for token signature (expires tokens)
- **HTTPS** built-in
- **npm audit** support (online only)
- **search, deprecate, star, token (npm commands)**

What's next?

verdaccio@6-next

- **New features**, rate limiting, custom hashing algorithms, UI improvements, also available on Verdaccio 5.
- **Modularize** the project and **reduce** core size
- Search on **all packages** at the storage
- Migrating to **Fastify** (👉 WIP)
- Improve **plugin system** and **async** the plugin API by default
- Upgrade **deprecated libraries**, prepare for future

verdaccio@6-next



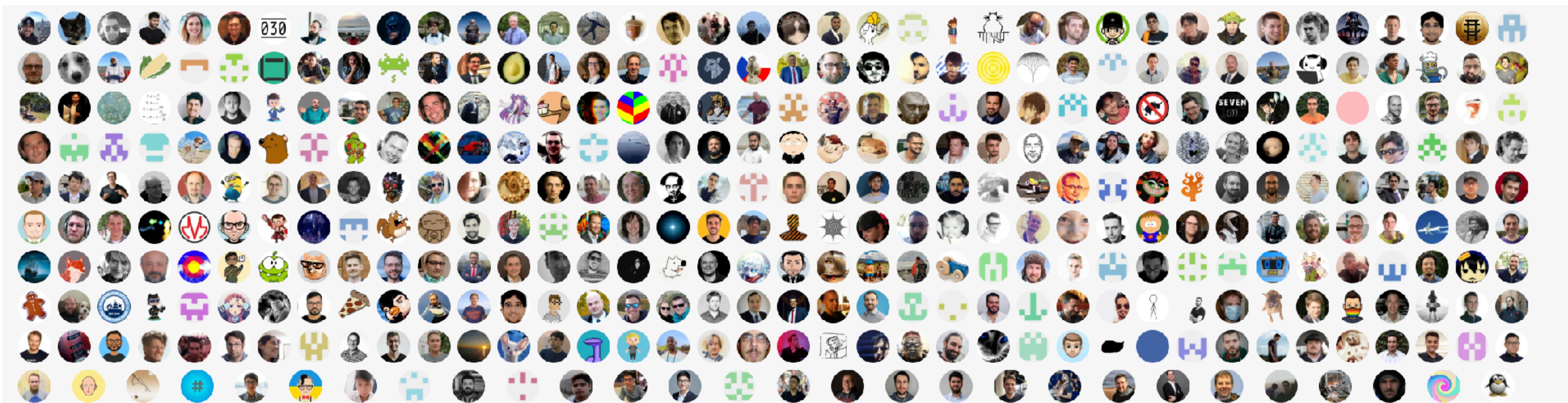
```
npm install --global verdaccio@6-next
```

```
docker pull verdaccio/verdaccio:nightly-master
```

Wrapping up

- **Protect your builds** caching external packages hosting a proxy registry
- Using a local registry for **E2E** your packages
- Extend Verdaccio by **creating and share plugins with the community**

372



Thanks!



 @jotadeveloper



<https://verdaccio.org>