

Yarn



yarn



NPM 5 and Yarn



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time cockpit
Saves the day.

Your Host

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What's the Problem?

Package management is critical for non-trivial projects

Example: react dependencies

npm is huge

Exponential growth

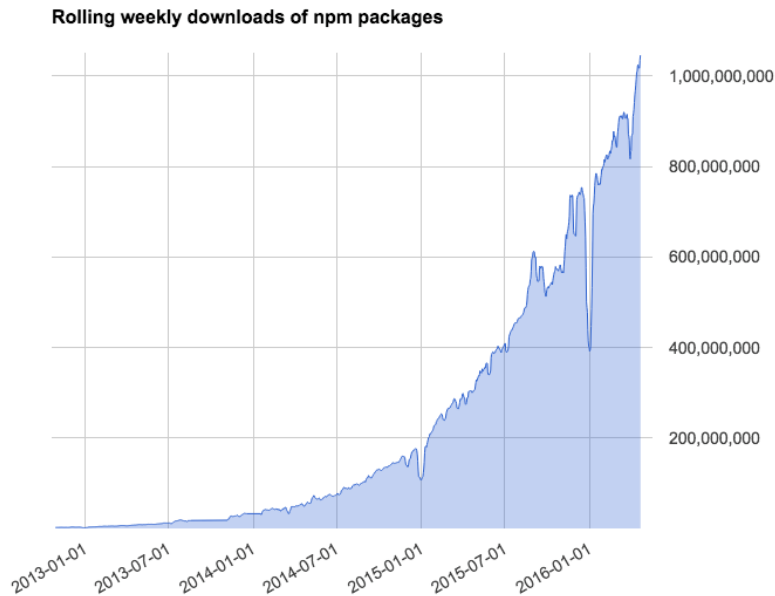
> 3 billion downloads/week

npm issues

Installs not fast/consistent enough

Security concerns (NPM allows packages to run code on installation)

You get different versions on different devices





yarn



@5

Yarn came to make everything better...

...and npm@5 caught up

Yarn

An Introduction...



What is Yarn?

Alternative NPM client

package.json -> switch between *yarn* and *npm* is easy

Developed by

Facebook, Google, Tilde, Exponent

BSD License

Release in October 2016

Links

[Official Website](#), [Github](#)

They have funny icons and Shitty Watercolour artwork ;-)

How to install?


Windows

First you need to install [Node.js](#)

Click on this link and install [yarn](#)

If you have got Node.js and [npm](#) installed

Just write this in the command line



```
npm install --global yarn
```

Other [operating systems](#)

Demo

Install Yarn

npm install -g npm/yarn

which/where yarn

yarn/npm --version

Main Features

Registry compatibility

Same *package.json* file, means that you can use another package manager

Deterministic install algorithm

The same dependencies will be installed in the same exact way on any machine
Similar to what *NPM 5* does

Caching mode

Yarn saves all packages in the *global cache*

Main Features

Improved network performance and resilience

- Parallelizes package downloads
- Continuously retrying failed requests

Secure install

- Package integrity is checked after each install to avoid corrupt packages

Offline mode

- Install used dependencies without internet (*global cache*)

Commands



yarn

Popular Commands

`yarn init`

Initializes the development of a package

`yarn add [package]`

Adds a package to use in your current project

`yarn (install)`

Installs all the dependencies to a package manager

`yarn remove`

Removes an unused package from your current file

`yarn publish [folder]`

Publishes a package to a package manager

`yarn publish [tarball]`

`yarn help`

Popular Commands

```
C:\Users\Jovan\Desktop\Fotos>yarn init
yarn init v0.27.5
question name (Fotos): Chalk
question version (1.0.0):
question description: Get a colorful commandline
question entry point (index.js):
question repository url:
question author: Jovan Preradovic
question license (MIT):
success Saved package.json
Done in 107.37s.
```

```
{ } package.json x
1 {
2   · "name": "Chalk",
3   · "version": "1.0.0",
4   · "description": "Get a colorful commandline",
5   · "main": "index.js",
6   · "author": "Jovan Preradovic",
7   · "license": "MIT"
8 }
9
```

Popular Commands

```
C:\Users\Jovan\Desktop\Fotos>yarn add chalk
yarn add v0.27.5
info No lockfile found.
[1/4] Resolving packages...
[2/4] Fetching packages...
[3/4] Linking dependencies...
[4/4] Building fresh packages...
success Saved lockfile.
success Saved 7 new dependencies.
├─ ansi-styles@3.2.0
├─ chalk@2.0.1
├─ color-convert@1.9.0
├─ color-name@1.1.3
├─ escape-string-regexp@1.0.5
├─ has-flag@2.0.0
└─ supports-color@4.2.1
Done in 0.63s.
```

{ } package.json x

```
1 {
2   · "name": "Chalk",
3   · "version": "1.0.0",
4   · "description": "Get a colorful commandline",
5   · "main": "index.js",
6   · "author": "Jovan Preradovic",
7   · "license": "MIT",
8   · "dependencies": {
9     ·   "chalk": "^2.0.1"
10  · }
11 }
12
```

Popular Commands

```
rainer@CARMINE:~/temp/yarn$ yarn add chalk --dev
yarn add v1.1.0
[1/4] Resolving packages...
[2/4] Fetching packages...
[3/4] Linking dependencies...
[4/4] Building fresh packages...
success Saved lockfile.
success Saved 7 new dependencies.
├─ ansi-styles@3.2.0
├─ chalk@2.1.0
├─ color-convert@1.9.0
├─ color-name@1.1.3
├─ escape-string-regexp@1.0.5
├─ has-flag@2.0.0
└─ supports-color@4.4.0
Done in 2.23s.
```

```
1 {
2   "name": "yarn",
3   "version": "1.0.0",
4   "main": "index.js",
5   "license": "MIT",
6   "dependencies": {},
7   "devDependencies": {
8     "chalk": "^2.1.0"
9   }
10 }
```

Popular Commands

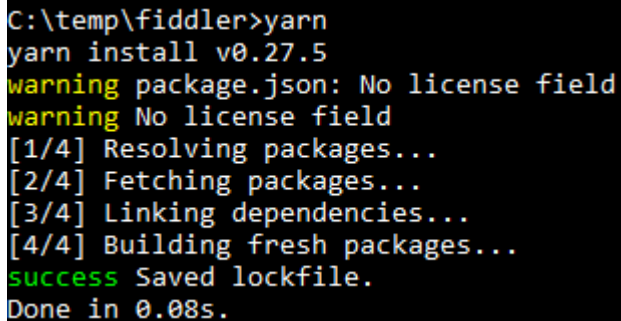
```
C:\Users\Jovan\Desktop\Fotos>yarn remove chalk
yarn remove v0.27.5
[1/2] Removing module chalk...
[2/2] Regenerating lockfile and installing missing dependencies...
success Uninstalled packages.
Done in 0.17s.
```

`{}` package.json ✕

```
1  {
2    · "name": "Chalk",
3    · "version": "1.0.0",
4    · "description": "Get a colorful commandline",
5    · "main": "index.js",
6    · "author": "Jovan Preradovic",
7    · "license": "MIT",
8    · "dependencies": {}
9  }
10
```


Popular Commands

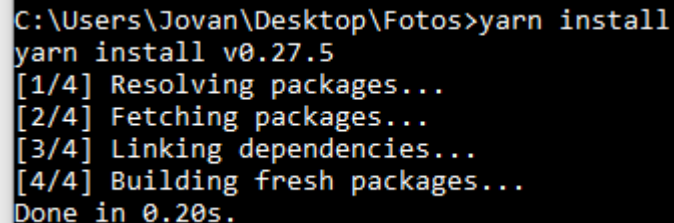
Two different ways to install packages



```
C:\temp\fiddler>yarn
yarn install v0.27.5
warning package.json: No license field
warning No license field
[1/4] Resolving packages...
[2/4] Fetching packages...
[3/4] Linking dependencies...
[4/4] Building fresh packages...
success Saved lockfile.
Done in 0.08s.
```

A terminal window showing the execution of 'yarn install v0.27.5'. It displays two warnings about missing license fields, progress steps for resolving, fetching, linking, and building packages, and a final success message indicating the lockfile was saved and the process took 0.08 seconds.

or



```
C:\Users\Jovan\Desktop\Fotos>yarn install
yarn install v0.27.5
[1/4] Resolving packages...
[2/4] Fetching packages...
[3/4] Linking dependencies...
[4/4] Building fresh packages...
Done in 0.20s.
```

A terminal window showing the execution of 'yarn install v0.27.5'. It displays progress steps for resolving, fetching, linking, and building packages, and a final completion message indicating the process took 0.20 seconds.

New Commands

```
yarn licenses ls
```

Allows you to inspect the licenses of your dependencies

```
yarn licenses generate-disclaimer
```

Automatically create your dependency disclaimer

```
yarn why [package]
```

Identify why a package is installed

```
yarn upgrade-interactive
```

Allows you to selectively upgrade specific packages

New Commands

```
└─ xml-dom@0.1.27
  └─ License: MIT*
    └─ URL: git://github.com/jindw/xml-dom.git
└─ xmlhttprequest-ssl@1.5.3
  └─ License: MIT
    └─ URL: git://github.com/mjwwit/node-XMLHttpRequest.git
└─ xtend@4.0.1
  └─ License: MIT
    └─ URL: git://github.com/Raynos/xtend.git
└─ y18n@3.2.1
  └─ License: ISC
    └─ URL: git@github.com:yargs/y18n.git
└─ yallist@2.1.2
  └─ License: ISC
    └─ URL: git+https://github.com/isaacs/yallist.git
yargs-parser@4.2.1
```

yarn licenses ls

New Commands

yarn licenses generate-disclaimer

The following software may be included in this product: cross-spawn. A copy of the source code may be downloaded from [git://github.com/IndigoUnited/node-cross-spawn.git](https://github.com/IndigoUnited/node-cross-spawn). This software contains the following license and notice below:

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New Commands

yarn why [package] →



```
C:\temp\fiddler>yarn why chalk
yarn why v0.27.5
warning package.json: No license field
[1/4] Why do we have the module "chalk"...?
[2/4] Initialising dependency graph...
warning No license field
[3/4] Finding dependency...
[4/4] Calculating file sizes...
info Has been hoisted to "chalk"
info This module exists because it's specified in "dependencies".
Done in 0.13s.
```

```
C:\temp\yarn\hello-world-app>yarn why chalk
yarn why v0.27.5
[1/4] Why do we have the module "chalk"...?
[2/4] Initialising dependency graph...
[3/4] Finding dependency...
[4/4] Calculating file sizes...
info Has been hoisted to "chalk"
info Reasons this module exists
  - "@angular/cli" depends on it
  - "ts-node" depends on it
  - "tslint#babel-code-frame" depends on it
Done in 0.91s.
```

New Commands

yarn upgrade-interactive

```
C:\temp\yarn\hello-world-app>yarn upgrade-interactive
yarn upgrade-interactive v0.27.5
info Color legend :
  "<red>"      : Patch Update Backward-compatible bug fixes
  "<yellow>"   : Minor Update backward-compatibles features
? Choose which packages to update. (Press <space> to select, <a> to toggle all, <i> to inverse selection)
devDependencies
>( ) @types/node           6.0.85  [E]  8.0.16  https://www.github.com/DefinitelyTyped/DefinitelyTyped.git
( ) codelyzer             3.0.1  [E]  3.1.2   https://github.com/mgechev/codelyzer#readme
( ) karma-chrome-launcher 2.1.1  [E]  2.2.0   https://github.com/karma-runner/karma-chrome-launcher#readme
( ) ts-node               3.0.6  [E]  3.3.0   https://github.com/TypeStrong/ts-node
( ) tslint               5.3.2  [E]  5.5.0   https://github.com/palantir/tslint#readme
( ) typescript            2.3.4  [E]  2.4.2   http://typescriptlang.org/
```

New Commands

yarn upgrade-interactive

```
C:\temp\yarn\hello-world-app>yarn upgrade-interactive
yarn upgrade-interactive v0.27.5
info Color legend :
"<red>"      : Patch Update Backward-compatible bug fixes
"<yellow>"   : Minor Update backward-compatibles features
? Choose which packages to update.
devDependencies
(*) @types/node      6.0.85  ⓘ  8.0.16  https://www.github.com/DefinitelyTyped/DefinitelyTyped.git
(*) codelyzer        3.0.1  ⓘ  3.1.2   https://github.com/mgechev/codelyzer#readme
(*) karma-chrome-launcher 2.1.1  ⓘ  2.2.0   https://github.com/karma-runner/karma-chrome-launcher#readme
(*) ts-node          3.0.6  ⓘ  3.3.0   https://github.com/TypeStrong/ts-node
(*) tslint           5.3.2  ⓘ  5.5.0   https://github.com/palantir/tslint#readme
>(*) typescript      2.3.4  ⓘ  2.4.2   http://typescriptlang.org/
```

New Commands

yarn upgrade-interactive

```
C:\temp\yarn\hello-world-app>yarn upgrade-interactive
yarn upgrade-interactive v0.27.5
info Color legend :
  "<red>"      : Patch Update Backward-compatible bug fixes
  "<yellow>"   : Minor Update backward-compatibles features
? Choose which packages to update.
? Choose which packages to update. @types/node@8.0.16, codelyzer@3.1.2, karma-chrome-launcher@2.2.0, ts-node@3.3.0, tslint@5.5.0, typescript@2.4.2
info Installing "devDependencies"...
[1/4] Resolving packages...
[2/4] Fetching packages...
warning fsevents@1.1.2: The platform "win32" is incompatible with this module.
info "fsevents@1.1.2" is an optional dependency and failed compatibility check. Excluding it from installation.
[3/4] Linking dependencies...
[4/4] Building fresh packages...
success Saved lockfile.
success Saved 8 new dependencies.
├─ @types/node@8.0.16
├─ codelyzer@3.1.2
├─ karma-chrome-launcher@2.2.0
├─ ts-node@3.3.0
├─ tslint@5.5.0
├─ tsutils@2.8.0
├─ typescript@2.4.2
└─ v8flags@3.0.0
Done in 48.10s.
```


Lockfile Comparison

```

1 # THIS IS AN AUTOGENERATED FILE. DO NOT EDIT THIS FILE DIRECTLY.
2 # yarn lockfile v1
3
4
5 ansi-styles@^3.1.0:
6   version "3.2.0"
7   resolved "https://registry.yarnpkg.com/ansi-styles/-/ansi-styles-3.2.0.tgz#c150b8d5be0f9e5a6f346dab94f16ce022161b88"
8   dependencies:
9     color-convert "^1.9.0"
10
11 chalk@^2.0.1:
12   version "2.0.1"
13   resolved "https://registry.yarnpkg.com/chalk/-/chalk-2.0.1.tgz#d8bec49436d2ae15f36114e76d14656cdbc0f44d"
14   dependencies:
15     ansi-styles "^3.1.0"
16     escape-string-regexp "^1.0.5"
17     supports-color "^4.0.0"
18
19 color-convert@^1.9.0:
20   version "1.9.0"
21   resolved "https://registry.yarnpkg.com/color-convert/-/color-convert-1.9.0.tgz#1accf97dd739b983bf994d456fec8f95853641b7a"
22   dependencies:
23     color-name "~1.1.1"
24
25 color-name@~1.1.1:
26   version "1.1.3"
27   resolved "https://registry.yarnpkg.com/color-name/-/color-name-1.1.3.tgz#a70d558bd89c42f795dd4328f740831ca53bc25"
28
29 escape-string-regexp@1.0.5:
30   version "1.0.5"
31   resolved "https://registry.yarnpkg.com/escape-string-regexp/-/escape-string-regexp-1.0.5.tgz#1b61c0562190a8dff6ae3bb2cf0200ca130b86d4"
32
33 has-flag@^2.0.0:
34   version "2.0.0"
35   resolved "https://registry.yarnpkg.com/has-flag/-/has-flag-2.0.0.tgz#e8207af1cc7b30d446cc70b734b5e8be18f88d51"
36
37 supports-color@4.0.0:
38   version "4.2.1"
39   resolved "https://registry.yarnpkg.com/supports-color/-/supports-color-4.2.1.tgz#865a4bb2631e90e02420dba554c375a4754bb836"
40   dependencies:
41     has-flag "^2.0.0"
42

```

```
gitHead: '582/081/19944a27903b52a88baeec1ec8581+82',
dist: {
  integrity: 'sha512-Mp+FXEI+FrWY/XV45b2YD3E813HwnEaOfCm0qLZzq/RZ',
  shasum: 'dbec49436d2ae15f536114e76d14656cdbc0f44d',
  tarball: 'https://registry.npmjs.org/chalk/-/chalk-2.0.1.tgz' },
directories: {} }
```

```

1  {
2    "name": "Test",
3    "version": "1.0.0",
4    "lockfileVersion": 1,
5    "dependencies": {
6      "ansi-styles": {
7        "version": "3.2.0",
8        "resolved": "https://registry.npmjs.org/ansi-styles/-/ansi-styles-3.2.0.tgz",
9        "integrity": "sha512-050803308043d0293359082156325c7ad144f72f2bfkHZs/gvQ8eQZM=
10     },
11    "chalk": {
12      "version": "2.0.1",
13      "resolved": "https://registry.npmjs.org/chalk/-/chalk-2.0.1.tgz",
14      "integrity": "sha512-MiSOqr63ZS00Eg2o0DQ8oGvV5pZUuGvvjuiiqKhj96nmVRO5JbESUjQ=
15    },
16    "color-convert": {
17      "version": "1.9.0",
18      "resolved": "https://registry.npmjs.org/color-convert/-/color-convert-1.9.0.tgz",
19      "integrity": "sha1-6sz5fcd5uY/mU1W/sj5FWNK3o=
20    },
21    "color-name": {
22      "version": "1.1.3",
23      "resolved": "https://registry.npmjs.org/color-name/-/color-name-1.1.3.tgz",
24      "integrity": "sha1-p9BV19icQveV3UIy3QIMpTcU=
25    },
26    "escape-string-regexp": {
27      "version": "1.0.5",
28      "resolved": "https://registry.npmjs.org/escape-string-regexp/-/escape-string-regexp-1.0.5.tgz",
29      "integrity": "sha1-G2HAVI6QqN/2rjuYzW1AyhMLhtQ=
30    },
31    "has-flag": {
32      "version": "2.0.0",
33      "resolved": "https://registry.npmjs.org/has-flag/-/has-flag-2.0.0.tgz",
34      "integrity": "sha1-6CB68cx7MNRGZHC3NLXovh4jVE=
35    },
36    "supports-color": {
37      "version": "4.2.1",
38      "resolved": "https://registry.npmjs.org/supports-color/-/supports-color-4.2.1.tgz",
39      "integrity": "sha512-R3IotxzajaI9sI0QWw4TQNI4K2oQvR1L0o0d5VG3YvU9vL4sLrNpMW=
40    }
41  }
42 }

```

Install Process

Resolution

Resolve dependencies by making requests to the registry and recursively looking up each dependency

Fetching

Save package tarballs on the global cache (offline mode, speed up)

Linking

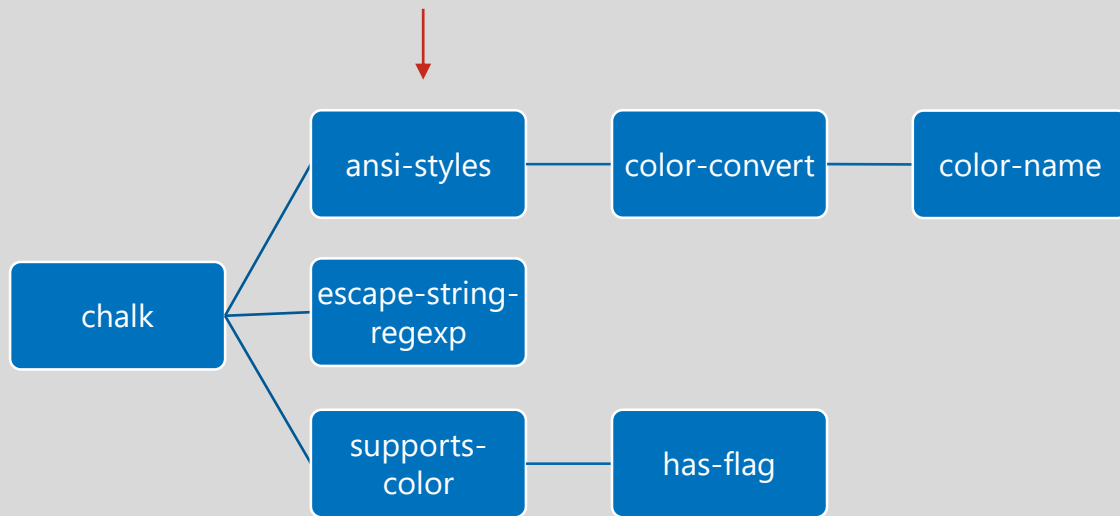
Copy all files from *global cache* to *node_modules* directory

```
C:\temp\test>yarn info chalk
```

or

```
C:\temp\test>npm show chalk
```

```
dependencies:
  { 'ansi-styles': '^3.1.0',
    'escape-string-regexp': '^1.0.5',
    'supports-color': '^4.0.0' },
```



Resolution

Chalk package hierarchy

Resolution

Result	Protocol	Host	URL	Body	Caching	Content-Type	Process
200	HTTPS	registry.yarnpkg.com	/chalk	1 370	max-age=300	application/vnd.npm.install-v1+json	node:1492
200	HTTPS	registry.yarnpkg.com	/ansi-styles	927	max-age=300	application/vnd.npm.install-v1+json	node:1492
200	HTTPS	registry.yarnpkg.com	/escape-string-regexp	489	max-age=300	application/vnd.npm.install-v1+json	node:1492
200	HTTPS	registry.yarnpkg.com	/supports-color	1 346	max-age=300	application/vnd.npm.install-v1+json	node:1492
200	HTTPS	registry.yarnpkg.com	/color-convert	1 557	max-age=300	application/vnd.npm.install-v1+json	node:1492
200	HTTPS	registry.yarnpkg.com	/has-flag	321	max-age=300	application/vnd.npm.install-v1+json	node:1492
200	HTTPS	registry.yarnpkg.com	/color-name	506	max-age=300	application/vnd.npm.install-v1+json	node:1492
200	HTTPS	registry.yarnpkg.com	/supports-color/-/supports-color-4.2.1.tgz	2 839	max-age=8...	application/octet-stream	node:1492
200	HTTPS	registry.yarnpkg.com	/ansi-styles/-/ansi-styles-3.2.0.tgz	3 618	max-age=8...	application/octet-stream	node:1492
200	HTTPS	registry.yarnpkg.com	/color-convert/-/color-convert-1.9.0.tgz	8 778	max-age=8...	application/octet-stream	node:1492
200	HTTPS	registry.yarnpkg.com	/has-flag/-/has-flag-2.0.0.tgz	1 850	max-age=8...	application/octet-stream	node:1492
200	HTTPS	registry.yarnpkg.com	/escape-string-regexp/-/escape-string-regexp-1.0.5.tgz	1 578	max-age=2...	application/octet-stream	node:1492
200	HTTPS	registry.yarnpkg.com	/chalk/-/chalk-2.0.1.tgz	8 538	max-age=8...	application/octet-stream	node:1492
200	HTTPS	registry.yarnpkg.com	/color-name/-/color-name-1.1.3.tgz	4 071	max-age=8...	application/octet-stream	node:1492


On this picture you see how the package *chalk* gets downloaded from *yarn*

Fetching

yarn cache list

Shows the *global cache* (tarball files)


```
C:\temp\fiddler>yarn cache ls
yarn cache v0.27.5
warning package.json: No license field
Name      Version Registry Resolved
ansi-styles 3.2.0   npm    https://registry.yarnpkg.com/ansi-styles/-/ansi-styles-3.2.0.tgz#c159b8d5be0f9e5a6f346dab94f16ce022161b88
chalk       2.0.1   npm    https://registry.yarnpkg.com/chalk/-/chalk-2.0.1.tgz#dbec49436d2ae15f536114e76d14656cdb0f44d
color-convert 1.9.0   npm    https://registry.yarnpkg.com/color-convert/-/color-convert-1.9.0.tgz#1accf97dd739b983bf994d56fec8f95853641b7a
color-name  1.1.3   npm    https://registry.yarnpkg.com/color-name/-/color-name-1.1.3.tgz#a7d0558bd89c42f795dd42328f740831ca53bc25
escape-string-regexp 1.0.5 npm    https://registry.yarnpkg.com/escape-string-regexp/-/escape-string-regexp-1.0.5.tgz#1b61c0562190a8dff6ae3bb2cf0200ca130b86d4
has-flag    2.0.0   npm    https://registry.yarnpkg.com/has-flag/-/has-flag-2.0.0.tgz#e8207af1cc7b30d446cc70b734b5e8be18f88d51
supports-color 4.2.1   npm    https://registry.yarnpkg.com/supports-color/-/supports-color-4.2.1.tgz#65a4bb2631e90e02420dba5554c375a4754bb836
Done in 0.05s.
```



Fetching

yarn cache dir

Shows the path of the *global cache*



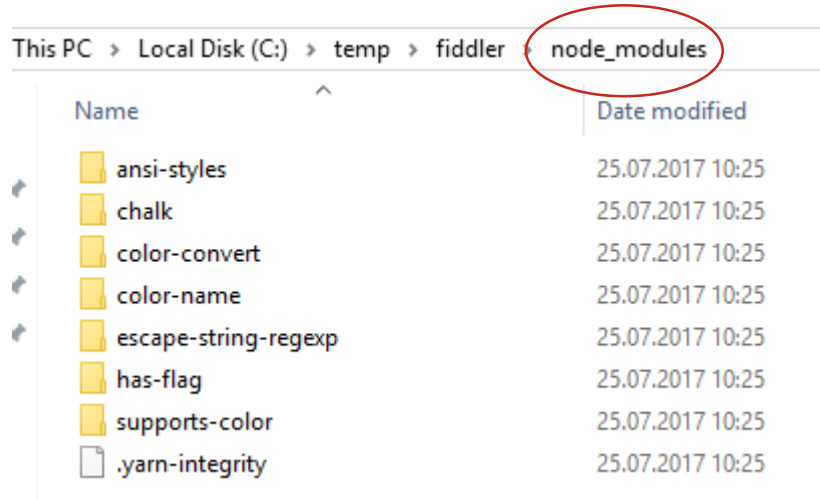
```
C:\temp\fiddler>yarn cache dir  
warning package.json: No license field  
C:\Users\Jovan\AppData\Local\Yarn\cache\v1
```

PC > Local Disk (C:) > Users > Jovan > AppData > Local > Yarn > cache > v1

Name	Date modified	Type
.tmp	25.07.2017 10:25	File folder
npm-ansi-styles-3.2.0-c159b8d5be0f9e5a...	25.07.2017 10:25	File folder
npm-chalk-2.0.1-dbec49436d2ae15f5361...	25.07.2017 10:25	File folder
npm-color-convert-1.9.0-1accf97dd739b...	25.07.2017 10:25	File folder
npm-color-name-1.1.3-a7d0558bd89c42f...	25.07.2017 10:25	File folder
npm-escape-string-regexp-1.0.5-1b61c0...	25.07.2017 10:25	File folder
npm-has-flag-2.0.0-e8207af1cc7b30d446...	25.07.2017 10:25	File folder
npm-supports-color-4.2.1-65a4bb2631e9...	25.07.2017 10:25	File folder

Linking

All files from *chalk* package
were copied into the
node_modules directory



.yarn-integrity File

Generated from the *yarn.lock* file, to check the versions of the dependencies

≡ .yarn-integrity x

```
1 {
2   "flags": [],
3   "linkedModules": [],
4   "topLevelPatterns": [
5     "chalk@^2.0.1"
6   ],
7   "lockfileEntries": {
8     "ansi-styles@^3.1.0": "https://registry.yarnpkg.com/ansi-styles/-/ansi-styles-3.2.0.tgz#c159b8d5be0f9e5a6f346dab94f16ce022161b88",
9     "chalk@^2.0.1": "https://registry.yarnpkg.com/chalk/-/chalk-2.0.1.tgz#dbec49436d2ae15f536114e76d14656cdbc0f44d",
10    "color-convert@^1.9.0": "https://registry.yarnpkg.com/color-convert/-/color-convert-1.9.0.tgz#1accf97dd739b983bf994d56fec8f95853641b7a",
11    "color-name@^1.1.1": "https://registry.yarnpkg.com/color-name/-/color-name-1.1.3.tgz#a7d0558bd89c42f795dd42328f740831ca53bc25",
12    "escape-string-regexp@^1.0.5": "https://registry.yarnpkg.com/escape-string-regexp/-/escape-string-regexp-1.0.5.tgz#1b61c0562190a8dff6ae3bb2cf0200ca130b86d4",
13    "has-flag@^2.0.0": "https://registry.yarnpkg.com/has-flag/-/has-flag-2.0.0.tgz#e8207af1cc7b30d446cc70b734b5e8be18f88d51",
14    "supports-color@^4.0.0": "https://registry.yarnpkg.com/supports-color/-/supports-color-4.2.1.tgz#65a4bb2631e90e02420dba5554c375a4754bb836"
15  },
16  "files": [],
17  "artifacts": {}
18 }
```


Install Angular CLI

Console commands

1. `yarn global add @angular/cli`
2. `ng set --global packageManager=yarn`
3. `ng new hello-world-app`
4. `cd hello-world-app`
5. `ng serve`

NPM 5

What's New?



NPM 5

[Blog post](#)

Got a speed update (from 20% to 100% faster)

[Shrinkwrap](#) does not exist anymore

Lockfiles and *cache* works almost like *yarn* (*SHA512 hashes*)

Do not need *--save* anymore

Package output tree is gone

Summary

Yarn killed npm?

No!

Yarn is just an alternative client

NPM ecosystem is used under the covers

NPM@5 is very similar to Yarn

You could mix inside a team – not sure if you should

Yarn has icons ;-) (on some platforms)

Competition is good for business

Even in the Open Source world

NPM 5 and Yarn

Q&A

Thank your for coming!



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time cockpit
Saves the day.