

1) **Install node** : <https://nodejs.org/en/download/>

2) **Check version**: `node --version`

Toolchain:

React library can be directly included into the web application through content delivery network (CDN).

Some of the popular toolchain to develop React applications are -

1. **Create React App** - SPA oriented toolchain
2. **Next.js** - server-side rendering oriented toolchain
3. **Gatsby** - Static content oriented toolchain

Tools required to develop a React application are :

1. **The serve**, a static server to serve our application during development
2. **Babel compiler**
3. **Create React App CLI**

Let us learn the basics of the above mentioned tools and how to install those:

3) Install the serve static server:

The serve is a lightweight web server. It serves static site and single page application. It loads fast and consume minimum memory. It can be used to serve a React application. Let us install the tool using npm package manager in our system.

```
npm install serve -g (for global install)
```

```
npm install serve (for local install - recommended)
```

```
added 93 packages, and audited 94 packages in 18s
```

```
10 packages are looking for funding
```

```
  run `npm fund` for details
```

```
found 0 vulnerabilities
```

```
npm notice
```

```
npm notice New minor version of npm available! 8.3.1 -> 8.5.5
```

```
npm notice Changelog: https://github.com/npm/cli/releases/tag/v8.5.5
```

```
npm notice Run npm install -g npm@8.5.5 to update!
```

```
npm notice
```

```
D:\ReactJS>npm install -g npm@8.5.5
```

```
[#####.....] \ reify:npm: timing reify:createSparse Completed in 1ms
```

```
added 2 packages, and audited 31 packages in 22s
```

```
found 0 vulnerabilities
```

4) `cd /go/to/your/workspace`

5) `mkdir static_site`

`cd static_site`

6) create a simple webpage : `index.html`

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <meta charset="UTF-8" />
```

```
    <title>Static website</title>
```

```
  </head>
```

```
  <body>
```

```

    <div><h1>Hello!</h1></div>
  </body>
</html>

```

7) run the serve command.:

serve .

We can also serve single file, index.html instead of the whole folder.

serve ./index.html

Serving!

```

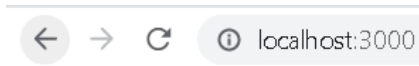
- Local:          http://localhost:3000
- On Your Network: http://192.168.1.176:3000

```

Copied local address to clipboard!

8) open the browser and enter `http://localhost:3000` in the address bar and press enter. serve application will serve our webpage as shown below.

Hello



Hello!

9) Install Babel compiler:

Babel is a JavaScript compiler which compiles many variant (es2015, es6, etc.,) of JavaScript into standard JavaScript code supported by all browsers.

Babel is used to compile the JSX code into JavaScript code.

npm install babel-cli@6 babel-preset-react-app@3 -g

output:

```

[#####.....] / idealTree:npm: timing idealTree:#root Completed in 2525ms
npm WARN deprecated source-map-url@0.4.1: See https://github.com/lydell/source-map-
url#deprecated
npm WARN deprecated urix@0.1.0: Please see https://github.com/lydell/urix#deprecated
npm WARN deprecated resolve-url@0.2.1: https://github.com/lydell/resolve-url#deprecated
npm WARN deprecated browserslist@2.11.3: Browserslist 2 could fail on reading
Browserslist >3.0 config used in other tools.
npm WARN deprecated source-map-resolve@0.5.3: See https://github.com/lydell/source-map-
resolve#deprecated
npm WARN deprecated chokidar@1.7.0: Chokidar 2 will break on node v14+. Upgrade to
chokidar 3 with 15x less dependencies.
npm WARN deprecated core-js@2.6.12: core-js@<3.4 is no longer maintained and not
recommended for usage due to the number of issues. Because of the V8 engine whims,
feature detection in old core-js versions could cause a slowdown up to 100x even if

```

nothing is polyfilled. Please, upgrade your dependencies to the actual version of core-js.

npm WARN deprecated core-js@2.6.12: core-js@<3.4 is no longer maintained and not recommended for usage due to the number of issues. Because of the V8 engine whims, feature detection in old core-js versions could cause a slowdown up to 100x even if nothing is polyfilled. Please, upgrade your dependencies to the actual version of core-js.

added 334 packages, and audited 335 packages in 38s

3 packages are looking for funding
run `npm fund` for details

7 vulnerabilities (2 low, 5 high)

To address all issues (including breaking changes), run:
npm audit fix --force

Run `npm audit` for details.

11) npm audit fix --force

npm WARN using --force Recommended protections disabled.
npm ERR! code ENOLOCK
npm ERR! audit This command requires an existing lockfile.
npm ERR! audit Try creating one first with: npm i --package-lock-only
npm ERR! audit Original error: loadVirtual requires existing shrinkwrap file

npm ERR! A complete log of this run can be found in:
npm ERR! C:\Users\Administrator\AppData\Local\npm-cache_logs\2022-03-24T13_52_39_186Z-debug-0.log

12) D:\ReactJS>npm i --package-lock-only

npm ERR! code ENOENT
npm ERR! syscall open
npm ERR! path D:\ReactJS/package.json
npm ERR! errno -4058
npm ERR! enoent ENOENT: no such file or directory, open 'D:\ReactJS\package.json'
npm ERR! enoent This is related to npm not being able to find a file.
npm ERR! enoent

npm ERR! A complete log of this run can be found in:
npm ERR! C:\Users\Administrator\AppData\Local\npm-cache_logs\2022-03-24T13_54_34_035Z-debug-0.log

above command will create package-lock.json file in the current directory.

13) npm audit fix --force

npm WARN using --force Recommended protections disabled.
up to date, audited 1 package in 588ms
found 0 vulnerabilities

10) Create React App toolchain:

Create React App is a modern CLI tool to create single page React application. It is the

standard tool supported by React community. It handles babel compiler as well. Let us install Create React App in our local system.

```
npm install -g create-react-app          (for global install - not recommended)
npx create-react-app my-app                (recommended)
cd my-app
npm start
```

output:

=====

npm WARN deprecated tar@2.2.2: This version of tar is no longer supported, and will not receive security updates. Please upgrade asap.

changed 67 packages, and audited 68 packages in 5s

4 packages are looking for funding
run `npm fund` for details

2 high severity vulnerabilities

Some issues need review, and may require choosing
a different dependency.

Run `npm audit` for details.

11) Updating the toolchain

```
npm install react-scripts@latest
```

output:

=====

[.....] | idealTree:ReactJS: sill idealTree buildDeps

npm WARN deprecated source-map-url@0.4.1: See <https://github.com/lydell/source-map-url#deprecated>

npm WARN deprecated svgo@1.3.2: This SVGO version is no longer supported. Upgrade to v2.x.x.

added 1363 packages, and audited 1364 packages in 3m

169 packages are looking for funding
run `npm fund` for details

8 moderate severity vulnerabilities

To address all issues (including breaking changes), run:
npm audit fix --force

Run `npm audit` for details.

Advantages of using React toolchain

React toolchain provides lot of features out of the box. Some of the advantages of using React toolchain are -

1. Predefined and standard structure of the application.
2. Ready-made project template for different type of application.
3. Development web server is included.
4. Easy way to include third party React components.
5. Default setup to test the application.