

Angular Webapp

A Single Page Application (SPA) for tracking vehicle

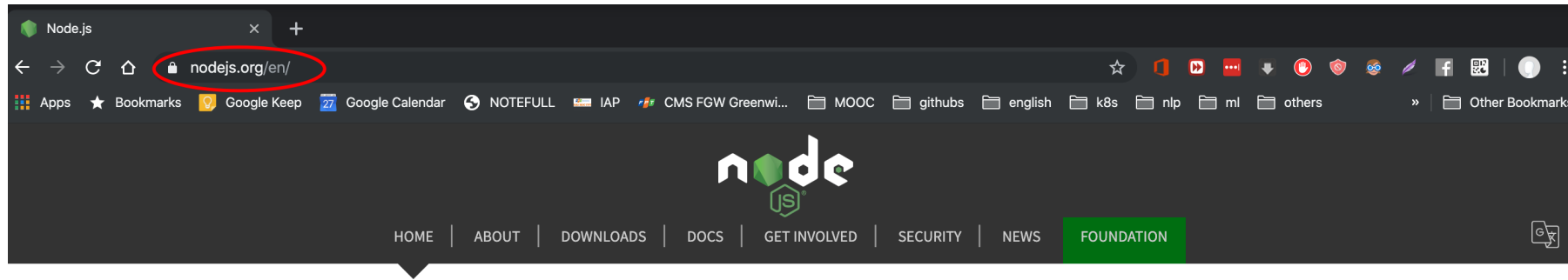
Outline

- Requirements
- Installation: NodeJS, Angular CLI
- Create an Angular project
- Containerization the project

Requirements

- Installed Softwares :
 - Docker (already installed)
 - Docker Compose (already installed)
 - NodeJS
 - Angular CLI
 - Visual Studio Code (already installed)
- Basic Knowledge:
 - Docker
 - Javascript, CSS, HTML
 - Typescript

Installation: NodeJS, Angular CLI



Node.js® is a JavaScript runtime built on [Chrome's V8 JavaScript engine](#).

Download for [macOS \(x64\)](#) choose your OS

12.13.0 LTS

Recommended For Most Users

13.0.1 Current

Latest Features

[Other Downloads](#) | [Changelog](#) | [API Docs](#) [Other Downloads](#) | [Changelog](#) | [API Docs](#)

Or have a look at the [Long Term Support \(LTS\) schedule](#).

Sign up for [Node.js Everywhere](#), the official Node.js Monthly Newsletter.

 **LINUX FOUNDATION** COLLABORATIVE PROJECTS

[Report Node.js issue](#) | [Report website issue](#) | [Get Help](#)

© Node.js Foundation. All Rights Reserved. Portions of this site originally © Joyent.

Node.js is a trademark of Joyent, Inc. and is used with its permission. Please review the [Trademark Guidelines](#) of the Node.js Foundation.

Linux Foundation is a registered trademark of The Linux Foundation.

Linux is a registered trademark of Linus Torvalds.

[Node.js Project Licensing Information](#).

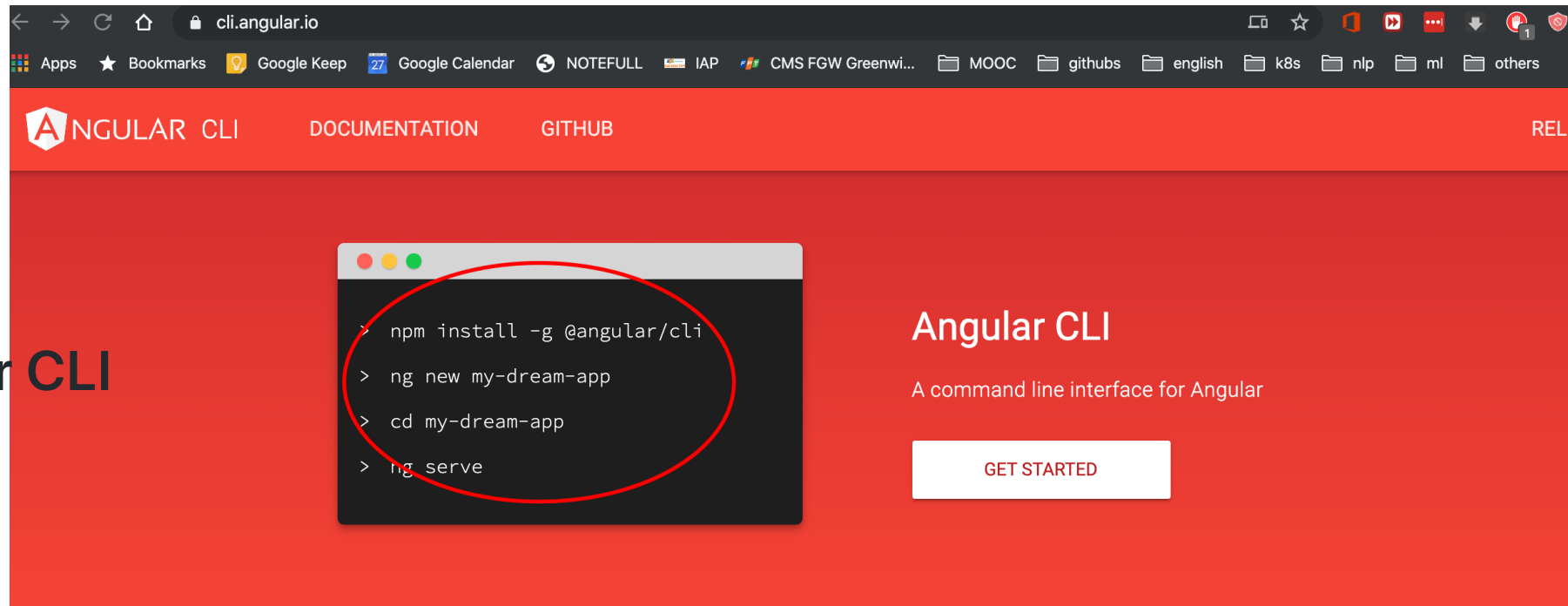
NodeJS Version Checking

Checking `node` 's version and `npm` 's version

```
$ node -v  
v12.13.0
```

```
$ npm -v  
6.12.0
```

Angular CLI



ng new

Create a new Angular project

```
$ ng new angular-webapp
```

Use Visual Studio Code to open folder `angular-webapp`

- Type `y` (yes) or `Enter` to any question showing up.

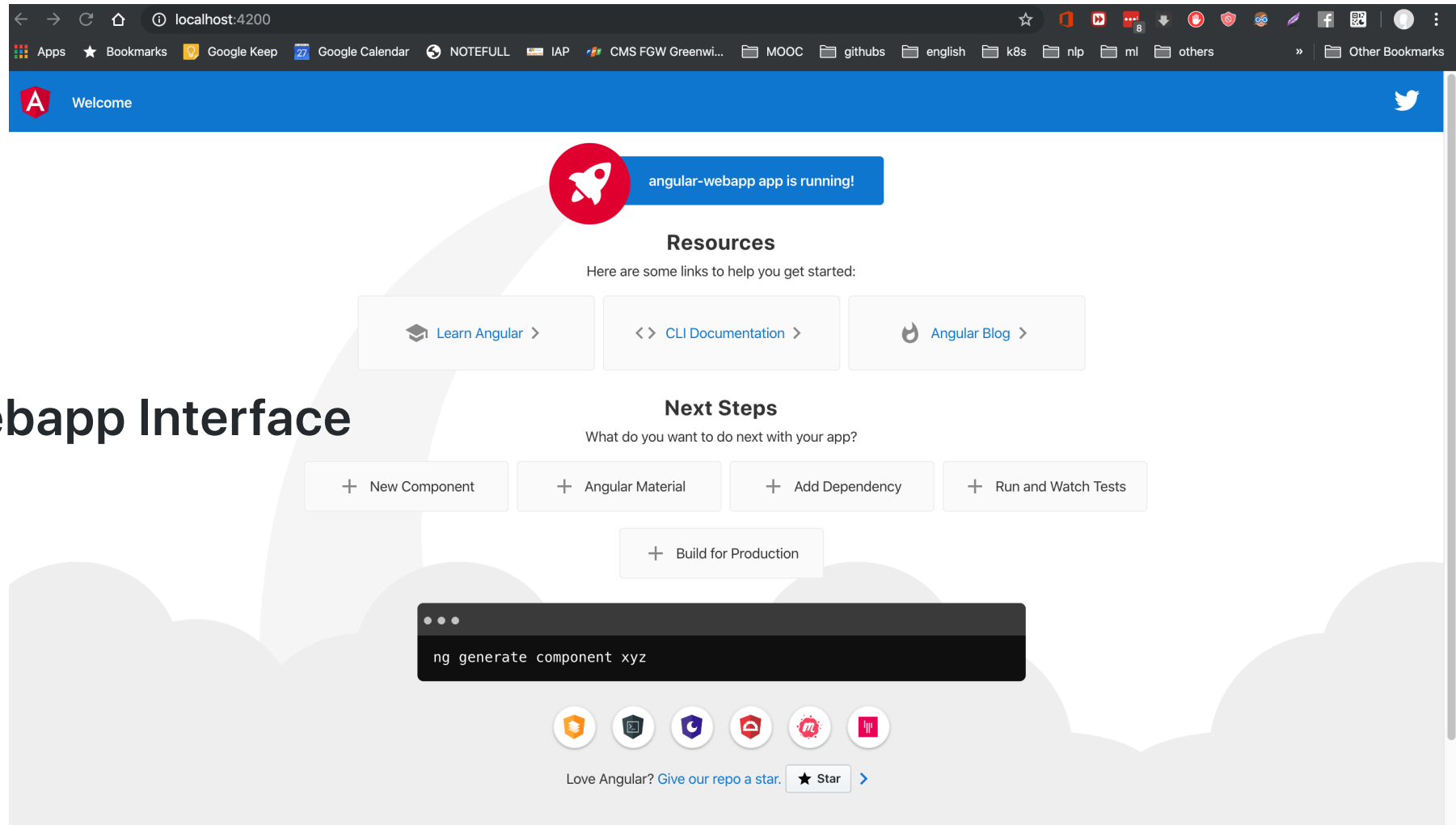
When the creation process is done, start the webapp with the following command

```
$ ng serve
```

Open your browser with `http://localhost:4200`

Terminate the website by typing `Ctrl + C`

The Webapp Interface



Build the Webapp for Production

```
ng build --prod
```

This process compiles an Angular project's source to a bundle which includes `.html`, `.css`, `.js` files for production.

When it is done, the production files are generated in folder `dist`

Containerization the project

Create Docker Image of the Webapp

We create an image of the webapp by composing `Dockerfile`.

Create an `Dockerfile` by the command

```
$ touch Dockerfile
```

What systems will run on the container?

The Webapp

Nginx

- Webserver
- Reverse Proxy
- Load Balancer

Add code to Dockerfile

```
# base image
FROM nginx:1.14.0-alpine

MAINTAINER Ho Tuan Dung "htdung820@gmail.com"

## installing some required Python packages
RUN apk --no-cache add \
    python2 \
    py2-pip && \
    pip2 install j2cli[yaml]
RUN apk add --update bash && rm -rf /var/cache/apk/*

# Deploy the production files of the webapp
RUN rm -rf /usr/share/nginx/html/*
COPY /dist/angular-webapp /usr/share/nginx/html

# Deploy configuration files of Nginx
COPY nginx.conf.j2 /templates/
COPY docker-entrypoint.sh /

ENTRYPOINT ["/docker-entrypoint.sh"]
CMD ["nginx", "-g", "daemon off;"]
```

Another required files: `nginx.conf.j2`

```
$ touch nginx.conf.j2
```

Add the following content

```
events {
    worker_connections 4096; ## Default: 1024
}

http {
    map $http_upgrade $connection_upgrade {
        default upgrade;
        '' close;
    }

    include /etc/nginx/mime.types;

    server {
        listen 80;

        location /api {
            proxy_set_header    Host $host;
            proxy_set_header    X-Real-IP $remote_addr;
            proxy_set_header    X-Forwarded-For $proxy_add_x_forwarded_for;
            proxy_set_header    X-Forwarded-Proto $scheme;

            proxy_read_timeout 90;

            proxy_http_version 1.1; # recommended with keepalive connections – http://nginx.org/en/docs/http/nginx\_http\_proxy\_module.html#proxy\_http\_version

            # WebSocket proxying – from http://nginx.org/en/docs/http/websocket.html
            proxy_set_header Upgrade $http_upgrade;
            proxy_set_header Connection $connection_upgrade;
        }

        location / {
            root /usr/share/nginx/html;
        }
    }
}
```

Another required files: `docker-entrypoint.sh`

Add `docker-entrypoint.sh` with the following content

```
#!/bin/bash -e
j2 /templates/nginx.conf.j2 > /etc/nginx/nginx.conf
exec "$@"
```


Build the image

```
$ docker build -t angular-webapp:1.0 .
```

Start the container

```
$ docker container run --rm --name angular-webapp -d -p 8080:80 angular-webapp:1.0
```

Open your browser with `http://localhost:8080`

Stop and Remove the container

```
$ docker container rm -f angular-webapp
```