Deploying a JavaScript (Angular) Application using Node, NPM, and Nginx

This guide walks through the process of setting up a development environment, building an Angular application, and deploying it to a production server using Nginx**.**

Prerequisites

Before you begin, ensure you have the following:
Two Ubuntu EC2 instances (or VMs):
Development Server – for building the Angular app
Production Server – for hosting with Nginx
SSH key pair for secure access (.pem file)
Basic knowledge of Linux commands

Update packages:

sudo apt update -y

sudo apt upgrade -y

Install Node.js and Angular CLI

1. **Install NVM (Node Version Manager) to manage Node versions:**

curl -fsSL https://raw.githubusercontent.com/nvm-sh/nvm/master/install.sh | bash

source ~/.bashrc

```
ubuntu@ip-172-31-30-127:~$ sudo apt install nodejs -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libcares2 libnode109 node-acorn node-busboy node-cjs-module-lexer node-undici node-xtend
  nodejs-doc
Suggested packages:
  npm
The following NEW packages will be installed:
  libcares2 libnode109 node-acorn node-busboy node-cjs-module-lexer node-undici node-xtend nodejs
  nodejs-doc
0 upgraded, 9 newly installed, 0 to remove and 53 not upgraded.
Need to get 16.1 MB of archives.
After this operation, 70.4 MB of additional disk space will be used.
Get:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/main amd64 libcares2 amd64 1.27.0-1.0ubuntu
```

```
ubuntu@ip-172-31-30-127:~$ sudo apt install npm -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu build-essential bzip2 cpp cpp-13
  cpp-13-x86-64-linux-gnu cpp-x86-64-linux-gnu dpkg dpkg-dev eslint fakeroot fontconfig-config
  fonts-dejavu-core fonts-dejavu-mono g++ g++-13 g++-13-x86-64-linux-gnu g++-x86-64-linux-gnu gcc
  gcc-13 gcc-13-base gcc-13-x86-64-linux-gnu gcc-x86-64-linux-gnu gyp handlebars javascript-common
  libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl libaom3 libasan8
  libatomic1 libauthen-sasl-perl libbinutils libc-bin libc-dev-bin libc-devtools libc6 libc6-dev
  libcc1-0 libclone-perl libcrypt-dev libctf-nobfd0 libctf0 libdata-dump-perl libde265-0 libdeflate0
  libdpkg-perl libdrm-amdgpu1 libdrm-intel1 libegl-mesa0 libegl1 libencode-locale-perl libfakeroot
  libfile-basedir-perl libfile-desktopentry-perl libfile-fcntllock-perl libfile-listing-perl
  libfile-mimeinfo-perl libfont-afm-perl libfontconfig1 libgbm1 libgcc-13-dev libgd3
  libgdk-pixbuf-2.0-0 libgdk-pixbuf2.0-bin libgdk-pixbuf2.0-common libgl1 libgl1-mesa-dri libgles2
```

Install Node.js LTS (v20 recommended):

nvm install 20

nvm use 20

Verify Node and NPM versions:

node -v

npm -v

Install Angular CLI globally:

npm install -g @angular/cli

ng version

3. Clone and Build Angular Application

1. **Clone your project:**

git clone https://github.com/Ai-TechNov/AngularCalculator.git

```
ubuntu@ip-172-31-30-127:~$ sudo git clone https://github.com/Ai-TechNov/AngularCalculator.git
Cloning into 'AngularCalculator'...
remote: Enumerating objects: 39, done.
remote: Total 39 (delta 0), reused 0 (delta 0), pack-reused 39 (from 1)
Receiving objects: 100% (39/39), 107.66 KiB | 15.38 MiB/s, done.
ubuntu@ip-172-31-30-127:~$
```

cd AngularCalculator/

Install dependencies:

npm install

```
ubuntu@ip-172-31-30-127:~/AngularCalculator$ npm install
npm WARN old lockfile
npm WARN old lockfile The package-lock.json file was created with an old version of npm,
npm WARN old lockfile so supplemental metadata must be fetched from the registry.
npm WARN old lockfile
npm WARN old lockfile This is a one-time fix-up, please be patient...
npm WARN old lockfile
(                    ) ⠸ idealTree:inflate:node_modules/@webassemblyjs/helper-module-context: sill infl
```

```
ubuntu@ip-172-31-30-127:~/AngularCalculator$ ^C
ubuntu@ip-172-31-30-127:~/AngularCalculator$ sudo npm install -g @angular/cli
(                    ) ⠼ idealTree:wrap-ansi: sill fetch manifest is-fullwidth-code-point@^4.0.0
```

Fix potential OpenSSL issues:

export NODE_OPTIONS=--openssl-legacy-provider

Build the Angular app (production build):

ng build –prod

```
ubuntu@ip-172-31-30-127:~/AngularCalculator$ ng build
 10% building 4/4 modules 0 active(node:9731) [DEP0111] DeprecationWarning: Access to process.binding(
'http_parser') is deprecated.
(Use `node --trace-deprecation ...` to show where the warning was created)
(node:9731) [DEP0111] DeprecationWarning: Access to process.binding( 10% building 4/5 modules 1 active
 ...ar-cli-files/models/es2015-polyfills.jsnode:internal/crypto/hash:101
  this[kHandle] = new _Hash(algorithm, xofLen, algorithmId, getHashCache());
                  ^
```

```
Time: 10378ms
chunk {es2015-polyfills} es2015-polyfills.js, es2015-polyfills.js.map (es2015-polyfills) 285 kB [initi
al] [rendered]
chunk {main} main.js, main.js.map (main) 14.7 kB [initial] [rendered]
chunk {polyfills} polyfills.js, polyfills.js.map (polyfills) 236 kB [initial] [rendered]
chunk {runtime} runtime.js, runtime.js.map (runtime) 6.08 kB [entry] [rendered]
chunk {styles} styles.js, styles.js.map (styles) 973 kB [initial] [rendered]
chunk {vendor} vendor.js, vendor.js.map (vendor) 3.2 MB [initial] [rendered]
ubuntu@ip-172-31-30-127:~/AngularCalculator$ ls
README.md     dist  node_modules       package.json  tsconfig.json
angular.json  e2e   package-lock.json  src           tslint.json
ubuntu@ip-172-31-30-127:~/AngularCalculator$
```

Check Nginx status:

sudo systemctl status nginx

Remove default content:

```
ubuntu@ip-172-31-23-29:~$ sudo apt install nginx -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  nginx-common
Suggested packages:
  fcgiwrap nginx-doc ssl-cert
The following NEW packages will be installed:
  nginx nginx-common
```

sudo rm -rf /var/www/html/*

Copy Angular build to Nginx directory:

sudo cp -r dist/angularCalc/* /var/www/html/

```
ubuntu@ip-172-31-23-29:~$ sudo cp * /var/www/html/
ubuntu@ip-172-31-23-29:~$
ubuntu@ip-172-31-23-29:~$ ls
es2015-polyfills.js      index.html   polyfills.js      runtime.js.map  vendor.js
es2015-polyfills.js.map  main.js      polyfills.js.map  styles.js       vendor.js.map
favicon.ico              main.js.map  runtime.js        styles.js.map
```

Set proper permissions:

sudo chown -R www-data:www-data /var/www/html

sudo chmod -R 755 /var/www/html

6. Access Your Angular App

- **Open a browser and go to:**

http://34.207.235.170/


Not secure
13.53.46.211
mail
YouTube
Maps
Gmail
YouTube
Maps


AC
/
7
8
9
x
4
5
6
-
3
2
1
+
0
.
=