

Ivy renderer

The new Angular compiler

- Angular 9 released the new Angular copier - codename **Ivy Renderer**
- Ivy renderer ships with the following goodies
 - ▶ Faster build
 - ▶ Better debugging
 - ▶ Smaller bundle size
- We get those benefits with almost no change in our development process
- The Ivy renderer is enabled by default so no need for activation

- Before running our code in the browser, angular compiler needs to compile it to something the browser can understand
- There are 2 types of compilation process
 - ▶ AOT
 - ▶ JIT
- JIT was used for development, and it will compile the code during runtime
- AOT compiles the code during build time, bakes the template code in the js code, does not need to ship the app with the compiler, and better checks our template for errors
- JIT was used in development and AOT was used for production only because it's slower
- Ivy compile speed is faster so AOT is now used for dev as well

- Create a new project using @angular/cli
- Run **npx ng serve** to start the development server
- Development is done with AOT by default as well so you get better type checking of your template
- Try and place a private variable in the template to view the type checking in the template
- Since compilation is faster we can develop with AOT in the previous version developing with AOT was too slow, then we would develop in JIT and get errors when building our code

Ivy strict template check

- Ivy compiles the template and check the template for errors
- There is better report of errors in the template
- Try and place an object in component class and reference it poorly in the template
- You will notice the template is passing compilation as well and you get the same typescript compile errors we see in our typescript code

Ivy dynamic component

- In the previous versions if we wanted to create components dynamically in our code we needed to place them in the module's **entryComponents**
- With Ivy it's no longer needed
- We also needed to include them in a module, now we can directly create a component without the component wrapped in a module

Ivy dynamic component - ex

- Create a lazy loaded component without a module
- Create a lazy loaded module with component

Bundle size

- With Ivy the bundle size is significantly smaller
- It is easier to create lazy loaded modules and Ivy will not include all the components in the module
- Only the components I use will be included in the bundle

Bundle size EX

- Lazy load a module
- The module should contain 2 components, one that you use and the other just belong to the module and not used
- Build the app using: **npx ng build --prod --stats-json**
- This will allow you to examine the bundle size
- Install web pack bundle analyser: **npm i webpack-bundle-analyzer -D**
- Examine the bundle size:
 - ▶ **npx webpack-bundle-analyzer dist/ivy-demo/stats.json**

Summary

- The Ivy renderer is definitely steps up our angular app
- Faster builds, better debugging and error messages, easier AOT, and smaller bundle size it is a super improvement in the angular development process.

Thank You

Next Lesson: Ivy renderer