

# Chapter 25: TypeScript with SystemJS

## Section 25.1: Hello World in the browser with SystemJS

### Install systemjs and plugin-typescript

```
npm install systemjs
npm install plugin-typescript
```

NOTE: this will install typescript 2.0.0 compiler which is not released yet.

For TypeScript 1.8 you have to use plugin-typescript 4.0.16

### Create hello.ts file

```
export function greeter(person: String) {
  return 'Hello, ' + person;
}
```

### Create hello.html file

```
<!doctype html>
<html>
<head>
  <title>Hello World in TypeScript</title>
  <script src="node_modules/systemjs/dist/system.src.js"></script>

  <script src="config.js"></script>

  <script>
    window.addEventListener('load', function() {
      System.import('./hello.ts').then(function(hello) {
        document.body.innerHTML = hello.greeter('World');
      });
    });
  </script>

</head>
<body>
</body>
</html>
```

### Create config.js - SystemJS configuration file

```
System.config({
  packages: {
    "plugin-typescript": {
      "main": "plugin.js"
    },
    "typescript": {
      "main": "lib/typescript.js",
      "meta": {
        "lib/typescript.js": {
          "exports": "ts"
        }
      }
    }
  }
})
```

```

    },
    map: {
      "plugin-typescript": "node_modules/plugin-typescript/lib/",
      /* NOTE: this is for npm 3 (node 6) */
      /* for npm 2, typescript path will be */
      /* node_modules/plugin-typescript/node_modules/typescript */
      "typescript": "node_modules/typescript/"
    },
    transpiler: "plugin-typescript",
    meta: {
      "./hello.ts": {
        format: "esm",
        loader: "plugin-typescript"
      }
    },
    typescriptOptions: {
      typeCheck: 'strict'
    }
  }
});

```

NOTE: if you don't want type checking, remove loader: "plugin-typescript" and typescriptOptions from config.js. Also note that it will never check javascript code, in particular code in the `<script>` tag in html example.

### Test it

```

npm install live-server
./node_modules/.bin/live-server --open=hello.html

```

### Build it for production

```

npm install systemjs-builder

```

Create build.js file:

```

var Builder = require('systemjs-builder');
var builder = new Builder();
builder.loadConfig('./config.js').then(function() {
  builder.bundle('./hello.ts', './hello.js', {minify: true});
});

```

build hello.js from hello.ts

```

node build.js

```

### Use it in production

Just load hello.js with a script tag before first use

hello-production.html file:

```

<!doctype html>
<html>
<head>
  <title>Hello World in TypeScript</title>
  <script src="node_modules/systemjs/dist/system.src.js"></script>

  <script src="config.js"></script>
  <script src="hello.js"></script>

```

```
<script>
  window.addEventListener('load', function() {
    System.import('./hello.ts').then(function(hello) {
      document.body.innerHTML = hello.greeter('World');
    });
  });
</script>
```

```
</head>
<body>
</body>
</html>
```

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