Introduction to Webpack

Conventions, Build Process, Basic Builds

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#webpack

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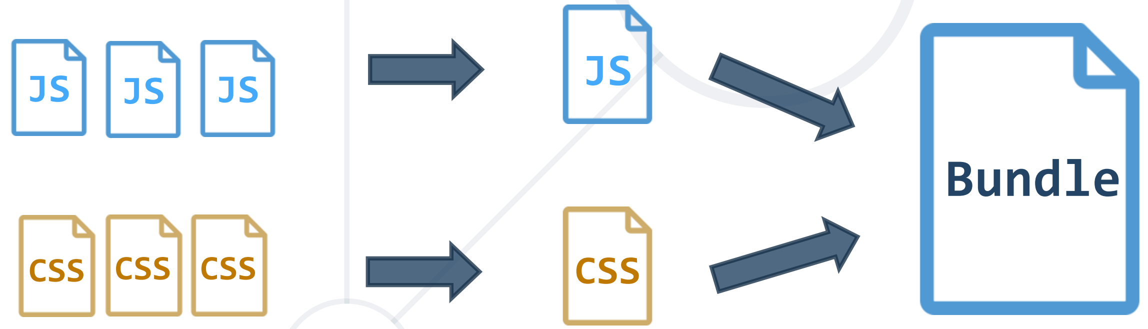
Webpack

A Wicked Smart Module Bundler

What is Webpack?

One of the newest tools, combining **build** steps and **bundling**

- Bundles **JavaScript** files for usage in a **browser**
- Supports **dependency** management
- Can load any **3rd party library** as a **module**
- Comes with it's **own** development **server**

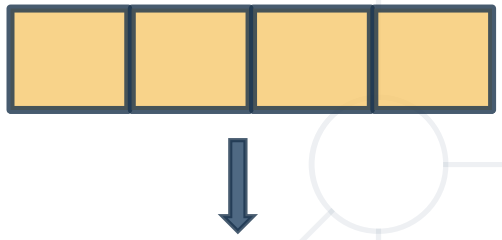


What does Webpack do?

- Manages **dependencies**
  - require
  - import
- Build **tasks** - convert and preprocess
  - Minify
  - Combine
  - Sass / Less conversion
  - Babel transpile
- Combines the build **system** and **module bundling**

Code Splitting

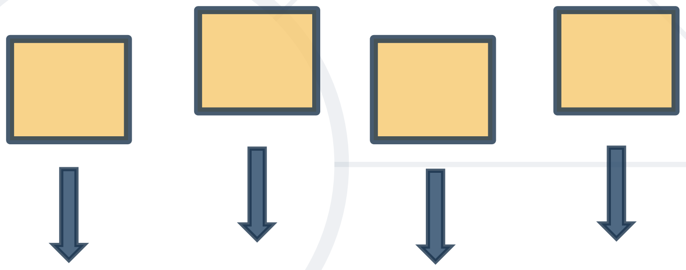
- All in one request



+ Less latency

- Get all bunch

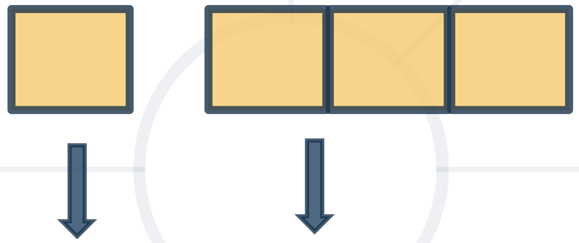
- Request per module



+ Get only what you need

- Much overhead
- Requests latency

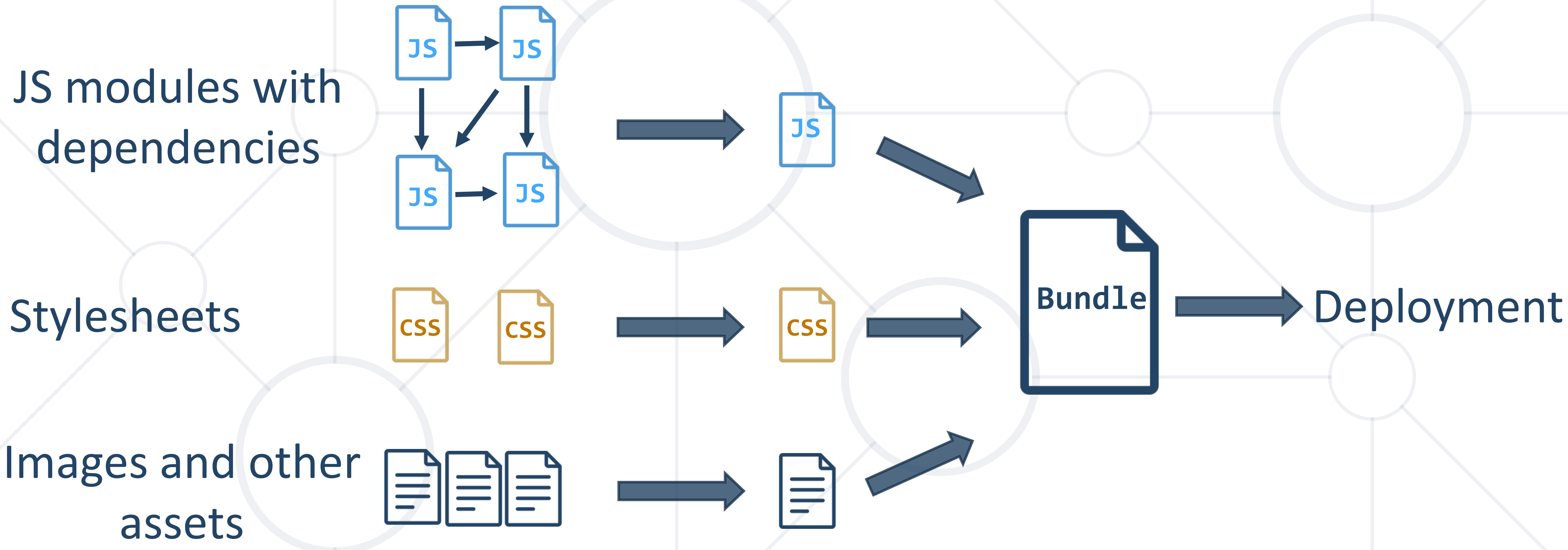
- Modules to chunks



+ Get only what you need

+ Less requests, less overhead

Webpack Build Process



Webpack Installation

Installation and CLI

- Install **Webpack** via **npm**

```
npm install webpack --save-dev
```

- Install the Webpack **command line interface**

```
npm install webpack-cli --save-dev
```

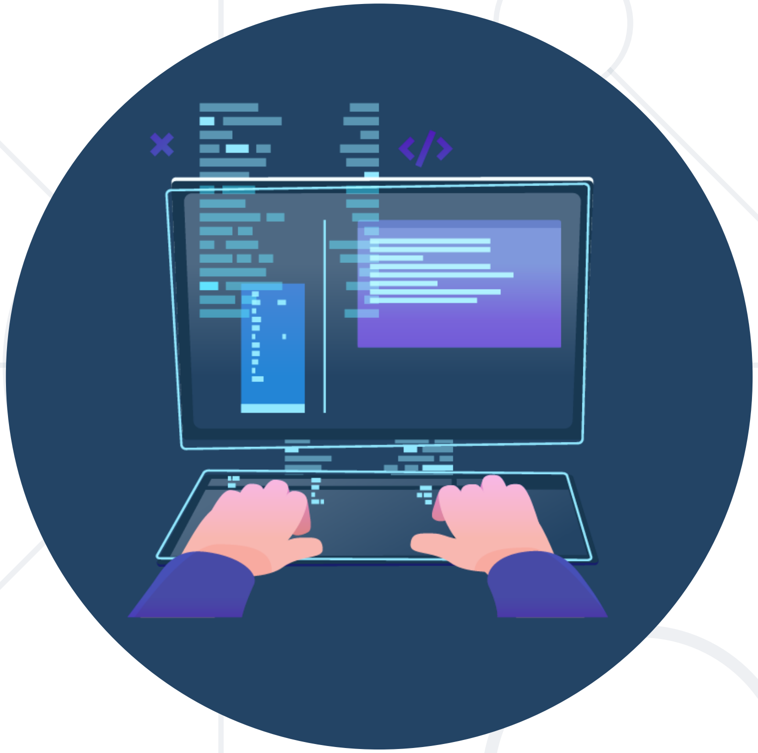
- Install the add-on **development server**

```
npm install webpack-dev-server --save-dev
```

package.json

Change package.json file

```
{
"name": "Demo",
"version": "1.0.0",
"description": "",
"private": true,
~~"main": "index.js",~~
"scripts": {
"test": "echo \"Error: no test specified\" && exit 1"
},
"keywords": [],
"author": "",
"license": "ISC",
"devDependencies": {
"webpack": "^4.35.3",
"webpack-cli": "^3.3.5",
"webpack-dev-server": "^3.7.2"
}
```



Basic Builds

Config file, Watch Mode, Production

Modules

- The **import** and **export** statements have been standardized in ES2015. They are **not supported** in most browsers yet
- Behind the scenes, webpack actually "**transpiles**" the code so that older browsers can also run it.
- Note that webpack will not **alter** any code other than **import** and **export** statements.

Adding a Config File

- Create a `webpack.config.js` to **automate** your build
  - Configuration is in JSON format

```
module.exports = {
  entry: "./app.js",
  output: {
    filename: "bundle.js",
    path: path.resolve(__dirname,'dist')
  }
};
```

Starting module

Final output file

Destination path

- When running **npx webpack** from the terminal, it uses this config

Enable Watch Mode

- Webpack can **watch** for file changes and **rebuild** the bundle
  - Add an argument or change your **config file** to enable **hot reloading**

```
npx webpack --watch
```

```
module.exports = {
  entry: … , output: … ,
  watch: true
};
```

Web Server with Watch Mode

- Run the **development server** from the terminal

```
npx webpack -dev-server --open
```

- Change your **config file** to enable **hot reloading**

```
module.exports = {
  entry: … , output: … ,
  devServer: {
    publicPath: "/dist/",
    watchContentBase: true,
  }
};
```

Building Multiple Files

- Requiring files

```
require("./file")
```

- Adding an **additional entry file** to our `webpack.config.js` file

```
module.exports = {
  entry: ["./global.js", "./app.js"],
  output: {
    filename: "bundle.js"
  }
};
```

Processing Files with Loaders and Preloaders

- **Loaders** apply transformations to files
  - Can be downloaded with **npm** and configured in the **main config**

```
module.exports = {
  entry: "./entry.js",
  output: {filename: "bundle.js"},
  module: {
    rules: [ … ]
  }
};
```

Loader format

```
{
  test: /\.js$/,
  exclude: /node_modules/,
  loader: "babel-loader"
}
```

- **Preloaders** are the same, they just run **before** any loaders

Creating a Start Script

- Webpack uses **npm scripts** for further automation
  - Add to your **package.json** file

```
scripts: {
  "start": "webpack-dev-server --open"
};
```

  - Instead of running **npx webpack-dev-server**, we can run the following instead

```
npm start
```

Production and Development Builds (1)

- To **minify** the bundle for deploy, run webpack with **–p** argument

```
npx webpack -p
```

- Install **strip-loader**
  - Strips **arbitrary functions** out of your production code

```
npm install strip-loader --save-dev
```

- Create **webpack-production.config.js**
  - You can specify a **different config file** for production

```
npx webpack --config webpack-production.config.js -p
```

Production and Development Builds (2)

- In the **webpack-production.config.js** write the following code:
  - Require the **strip-loader** npm module

```
let WebpackStripLoader = require('strip-loader');
```

  - Require the **original webpack** configuration file

```
let devConfig = require('./webpack.config.js');
```

Production and Development Builds (3)

- Create a **new object**, and pass in the **test**, **exclude** and **loader** keys

```
let stripLoader = { test: [/\.js$/, /\.es6$/],
 exclude: /node_modules/,
 loader: WebpackStripLoader.loader('console.log') }
```

Production and Development Builds (4)

- **Push** the new object into our **loaders** array from our **original config**

```
devConfig.module.loaders.push(stripLoader);
```

- **Export** our new config object

```
module.exports = devConfig;
```

Live Demo

Automated build with WebPack

Summary

- Webpack is a **module bundler**. It relies on:
  - **Dependency graph** underneath
  - **Loaders** and **plugins**
- Its **configuration** describes how to transform assets of the graphs
- Features like **code splitting** are used
- It comes with it's **own** development **server**

Questions?

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https://softuni.bg/trainings/2469/webpack-4-august-2019

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