

This example shows how the `sideEffects` flag for library authors works.

The example contains a large library, `big-module`. `big-module` contains multiple child modules: `a`, `b` and `c`. The exports from the child modules are re-exported in the entry module (`index.js`) of the library. A consumer uses **some** of the exports, importing them from the library via `import { a, b } from "big-module"`. According to the EcmaScript spec, all child modules *must* be evaluated because they could contain side effects.

The `"sideEffects": false` flag in `big-module`'s `package.json` indicates that the package's modules have no side effects (on evaluation) and only expose exports. This allows tools like webpack to optimize re-exports. In the case `import { a, b } from "big-module-with-flag"` is rewritten to `import { a } from "big-module-with-flag/a"; import { b } from "big-module-with-flag/b"`.

The example contains two variants of `big-module`. `big-module` has no `sideEffects` flag and `big-module-with-flag` has the `sideEffects` flag. The example client imports `a` and `b` from each of the variants.

After being built by webpack, the output bundle contains `index.js a.js b.js c.js` from `big-module`, but only `a.js` and `b.js` from `big-module-with-flag`.

Advantages:

- Smaller bundles
- Faster boot up

## example.js

```
import { a as a1, b as b1 } from "big-module";
import { a as a2, b as b2 } from "big-module-with-flag";

console.log(
  a1,
  b1,
  a2,
  b2
);
```

## node\_modules/big-module/package.json

```
{
  "name": "big-module"
}
```

## node\_modules/big-module-with-flag/package.json

```
{
  "name": "big-module-with-flag",
  "sideEffects": false
}
```

## node\_modules/big-module(-with-flag)/index.js

```
export { a } from "./a";
export { b } from "./b";
export { c } from "./c";

console.log("side effect");
```

## dist/output.js

```
/***/ ((() => { // webpackBootstrap
  /***/
  "use strict";
  /***/
  var __webpack_modules__ = ([
    /* 0 */,
    /* 1 */
    /*!*****\
    *** ./node_modules/big-module/index.js ***!
    \******/
    /*! namespace exports */
    /*! export a [provided] [no usage info] [missing usage info prevents renaming] -> ./node_modules/big-module/index.js */
    /*! export b [provided] [no usage info] [missing usage info prevents renaming] -> ./node_modules/big-module/index.js */
    /*! export c [provided] [no usage info] [missing usage info prevents renaming] -> ./node_modules/big-module/index.js */
    /*! other exports [not provided] [no usage info] */
    /*! runtime requirements: __webpack_require__, __webpack_exports__, __webpack_require__.d, __webpack_require__.get */
    /*! Statement (ExpressionStatement) with side effects in source code at 5:0-27 */
    /***/ ((__unused_webpack_module, __webpack_exports__, __webpack_require__) => {

      __webpack_require__.r(__webpack_exports__);
      /* harmony export */ __webpack_require__.d(__webpack_exports__, {
        /* harmony export */ "a": () => (/* reexport safe */ __webpack_require__("./node_modules/big-module/index.js").a),
        /* harmony export */ "b": () => (/* reexport safe */ __webpack_require__("./node_modules/big-module/index.js").b),
        /* harmony export */ "c": () => (/* reexport safe */ __webpack_require__("./node_modules/big-module/index.js").c),
        /* harmony export */ });
      /* harmony import */ var _a__WEBPACK_IMPORTED_MODULE_0__ = __webpack_require__("./node_modules/big-module/index.js");
      /* harmony import */ var _b__WEBPACK_IMPORTED_MODULE_1__ = __webpack_require__("./node_modules/big-module/index.js");
      /* harmony import */ var _c__WEBPACK_IMPORTED_MODULE_2__ = __webpack_require__("./node_modules/big-module/index.js");
    })
  ])
```

```
console.log("side effect");
```

```
/***/ }),
/* 2 */
/*!*****!\
*** ./node_modules/big-module/a.js ***!
\******/
/*! namespace exports */
/*! export a [provided] [no usage info] [missing usage info prevents renaming] */
/*! other exports [not provided] [no usage info] */
/*! runtime requirements: __webpack_require__\.r, __webpack_exports__, __webpack_require__\.d */
/***/ ((__unused_webpack_module, __webpack_exports__, __webpack_require__) => {

  __webpack_require__\.r(__webpack_exports__);
  /* harmony export */ __webpack_require__\.d(__webpack_exports__, {
    /* harmony export */ "a": () => (/* binding */ a)
    /* harmony export */ });
  const a = "a";

  /***/ }),
/* 3 */
/*!*****!\
*** ./node_modules/big-module/b.js ***!
\******/
/*! namespace exports */
/*! export b [provided] [no usage info] [missing usage info prevents renaming] */
/*! other exports [not provided] [no usage info] */
/*! runtime requirements: __webpack_require__\.r, __webpack_exports__, __webpack_require__\.d */
/***/ ((__unused_webpack_module, __webpack_exports__, __webpack_require__) => {

  __webpack_require__\.r(__webpack_exports__);
  /* harmony export */ __webpack_require__\.d(__webpack_exports__, {
    /* harmony export */ "b": () => (/* binding */ b)
    /* harmony export */ });
  const b = "b";

  /***/ }),
/* 4 */
/*!*****!\
*** ./node_modules/big-module/c.js ***!
\******/
```

```

    /*! namespace exports */
    /*! export c [provided] [no usage info] [missing usage info prevents renaming] */
    /*! other exports [not provided] [no usage info] */
    /*! runtime requirements: __webpack_require__.r, __webpack_exports__, __webpack_require__.d.
    /***/ ((__unused_webpack_module, __webpack_exports__, __webpack_require__) => {

    __webpack_require__.r(__webpack_exports__);
    /* harmony export */ __webpack_require__.d(__webpack_exports__, {
    /* harmony export */   "c": () => (/* binding */ c)
    /* harmony export */ });
    const c = "c";

    /***/ }),
    /* 5 */
    /*!*****!*\
    !*** ./node_modules/big-module-with-flag/a.js ***!
    \*****\
    /*! namespace exports */
    /*! export a [provided] [no usage info] [missing usage info prevents renaming] */
    /*! other exports [not provided] [no usage info] */
    /*! runtime requirements: __webpack_require__.r, __webpack_exports__, __webpack_require__.d.
    /***/ ((__unused_webpack_module, __webpack_exports__, __webpack_require__) => {

    __webpack_require__.r(__webpack_exports__);
    /* harmony export */ __webpack_require__.d(__webpack_exports__, {
    /* harmony export */   "a": () => (/* binding */ a)
    /* harmony export */ });
    const a = "a";

    /***/ }),
    /* 6 */
    /*!*****!*\
    !*** ./node_modules/big-module-with-flag/b.js ***!
    \*****\
    /*! namespace exports */
    /*! export b [provided] [no usage info] [missing usage info prevents renaming] */
    /*! other exports [not provided] [no usage info] */
    /*! runtime requirements: __webpack_require__.r, __webpack_exports__, __webpack_require__.d.
    /***/ ((__unused_webpack_module, __webpack_exports__, __webpack_require__) => {

    __webpack_require__.r(__webpack_exports__);
    /* harmony export */ __webpack_require__.d(__webpack_exports__, {
    /* harmony export */   "b": () => (/* binding */ b)
    /* harmony export */ });

```

```

const b = "b";

/***/ })
/***/    });

/* webpack runtime code */

/***/
/***/    // The module cache
/***/    var __webpack_module_cache__ = {};
/***/
/***/    // The require function
/***/    function __webpack_require__(moduleId) {
/***/        // Check if module is in cache
/***/        var cachedModule = __webpack_module_cache__[moduleId];
/***/        if (cachedModule !== undefined) {
/***/            return cachedModule.exports;
/***/        }
/***/        // Create a new module (and put it into the cache)
/***/        var module = __webpack_module_cache__[moduleId] = {
/***/            // no module.id needed
/***/            // no module.loaded needed
/***/            exports: {}
/***/        };
/***/
/***/        // Execute the module function
/***/        __webpack_modules__[moduleId](module, module.exports, __webpack_require__);
/***/
/***/        // Return the exports of the module
/***/        return module.exports;
/***/    }
/***/
/***/
/***/    // webpack/runtime/define property getters */
/***/    (() => {
/***/        // define getter functions for harmony exports
/***/        __webpack_require__.d = (exports, definition) => {
/***/            for(var key in definition) {
/***/                if(__webpack_require__.o(definition, key) && !__webpack_require__.o(
/***/                    Object.defineProperty(exports, key, { enumerable: true, get: de
/***/                }
/***/            }
/***/        };
/***/    })();
/***/
/***/    // webpack/runtime/hasOwnProperty shorthand */

```



## Info

### Unoptimized

```
asset output.js 8.55 KiB [emitted] (name: main)
chunk (runtime: main) output.js (main) 354 bytes (javascript) 670 bytes (runtime) [entry] [1]
  > ./example.js main
    dependent modules 214 bytes [dependent] 6 modules
    runtime modules 670 bytes 3 modules
    ./example.js 140 bytes [built] [code generated]
      [no exports]
      [used exports unknown]
    entry ./example.js main
webpack 5.51.1 compiled successfully
```

### Production mode

```
asset output.js 79 bytes [emitted] [minimized] (name: main)
chunk (runtime: main) output.js (main) 332 bytes [entry] [rendered]
  > ./example.js main
    ./example.js + 5 modules 332 bytes [built] [code generated]
      [no exports]
      [no exports used]
    entry ./example.js main
webpack 5.51.1 compiled successfully
```