# @jridgewell/sourcemap-codec

Encode/decode the mappings property of a [sourcemap](https://docs.google.com/document/d/1U1RGAehQwRypUTovF1KRlpiOFze0b-_2gc6fAH0KY0k/edit).

## Why?

Sourcemaps are difficult to generate and manipulate, because the mappings property – the part that actually links the generated code back to the original source – is encoded using an obscure method called [Variable-length quantity](https://en.wikipedia.org/wiki/Variable-length_quantity). On top of that, each segment in the mapping contains offsets rather than absolute indices, which means that you can't look at a segment in isolation – you have to understand the whole sourcemap.

This package makes the process slightly easier.

## Installation

npm install @jridgewell/sourcemap-codec

## Usage

import { encode, decode } from '@jridgewell/sourcemap-codec';

var decoded = decode( ';EAEEA,EAAE,EAAC,CAAE;ECQY,UACC' );

assert.deepEqual( decoded, [

// the first line (of the generated code) has no mappings,

// as shown by the starting semi-colon (which separates lines)

[],

// the second line contains four (comma-separated) segments

[

// segments are encoded as you'd expect:

// [ generatedCodeColumn, sourceIndex, sourceCodeLine, sourceCodeColumn, nameIndex ]

// i.e. the first segment begins at column 2, and maps back to the second column

// of the second line (both zero-based) of the 0th source, and uses the 0th

// name in the `map.names` array

[ 2, 0, 2, 2, 0 ],

// the remaining segments are 4-length rather than 5-length,

// because they don't map a name

[ 4, 0, 2, 4 ],

[ 6, 0, 2, 5 ],

[ 7, 0, 2, 7 ]

],

// the final line contains two segments

[

[ 2, 1, 10, 19 ],

[ 12, 1, 11, 20 ]

]

]);

var encoded = encode( decoded );

assert.equal( encoded, ';EAEEA,EAAE,EAAC,CAAE;ECQY,UACC' );

## Benchmarks

node v20.10.0

amp.js.map - 45120 segments

Decode Memory Usage:

local code 5815135 bytes

@jridgewell/sourcemap-codec 1.4.15 5868160 bytes

sourcemap-codec 5492584 bytes

source-map-0.6.1 13569984 bytes

source-map-0.8.0 6390584 bytes

chrome dev tools 8011136 bytes

Smallest memory usage is sourcemap-codec

Decode speed:

decode: local code x 492 ops/sec ±1.22% (90 runs sampled)

decode: @jridgewell/sourcemap-codec 1.4.15 x 499 ops/sec ±1.16% (89 runs sampled)

decode: sourcemap-codec x 376 ops/sec ±1.66% (89 runs sampled)

decode: source-map-0.6.1 x 34.99 ops/sec ±0.94% (48 runs sampled)

decode: source-map-0.8.0 x 351 ops/sec ±0.07% (95 runs sampled)

chrome dev tools x 165 ops/sec ±0.91% (86 runs sampled)

Fastest is decode: @jridgewell/sourcemap-codec 1.4.15

Encode Memory Usage:

local code 444248 bytes

@jridgewell/sourcemap-codec 1.4.15 623024 bytes

sourcemap-codec 8696280 bytes

source-map-0.6.1 8745176 bytes

source-map-0.8.0 8736624 bytes

Smallest memory usage is local code

Encode speed:

encode: local code x 796 ops/sec ±0.11% (97 runs sampled)

encode: @jridgewell/sourcemap-codec 1.4.15 x 795 ops/sec ±0.25% (98 runs sampled)

encode: sourcemap-codec x 231 ops/sec ±0.83% (86 runs sampled)

encode: source-map-0.6.1 x 166 ops/sec ±0.57% (86 runs sampled)

encode: source-map-0.8.0 x 203 ops/sec ±0.45% (88 runs sampled)

Fastest is encode: local code,encode: @jridgewell/sourcemap-codec 1.4.15

\*\*\*

babel.min.js.map - 347793 segments

Decode Memory Usage:

local code 35424960 bytes

@jridgewell/sourcemap-codec 1.4.15 35424696 bytes

sourcemap-codec 36033464 bytes

source-map-0.6.1 62253704 bytes

source-map-0.8.0 43843920 bytes

chrome dev tools 45111400 bytes

Smallest memory usage is @jridgewell/sourcemap-codec 1.4.15

Decode speed:

decode: local code x 38.18 ops/sec ±5.44% (52 runs sampled)

decode: @jridgewell/sourcemap-codec 1.4.15 x 38.36 ops/sec ±5.02% (52 runs sampled)

decode: sourcemap-codec x 34.05 ops/sec ±4.45% (47 runs sampled)

decode: source-map-0.6.1 x 4.31 ops/sec ±2.76% (15 runs sampled)

decode: source-map-0.8.0 x 55.60 ops/sec ±0.13% (73 runs sampled)

chrome dev tools x 16.94 ops/sec ±3.78% (46 runs sampled)

Fastest is decode: source-map-0.8.0

Encode Memory Usage:

local code 2606016 bytes

@jridgewell/sourcemap-codec 1.4.15 2626440 bytes

sourcemap-codec 21152576 bytes

source-map-0.6.1 25023928 bytes

source-map-0.8.0 25256448 bytes

Smallest memory usage is local code

Encode speed:

encode: local code x 127 ops/sec ±0.18% (83 runs sampled)

encode: @jridgewell/sourcemap-codec 1.4.15 x 128 ops/sec ±0.26% (83 runs sampled)

encode: sourcemap-codec x 29.31 ops/sec ±2.55% (53 runs sampled)

encode: source-map-0.6.1 x 18.85 ops/sec ±3.19% (36 runs sampled)

encode: source-map-0.8.0 x 19.34 ops/sec ±1.97% (36 runs sampled)

Fastest is encode: @jridgewell/sourcemap-codec 1.4.15

\*\*\*

preact.js.map - 1992 segments

Decode Memory Usage:

local code 261696 bytes

@jridgewell/sourcemap-codec 1.4.15 244296 bytes

sourcemap-codec 302816 bytes

source-map-0.6.1 939176 bytes

source-map-0.8.0 336 bytes

chrome dev tools 587368 bytes

Smallest memory usage is source-map-0.8.0

Decode speed:

decode: local code x 17,782 ops/sec ±0.32% (97 runs sampled)

decode: @jridgewell/sourcemap-codec 1.4.15 x 17,863 ops/sec ±0.40% (100 runs sampled)

decode: sourcemap-codec x 12,453 ops/sec ±0.27% (101 runs sampled)

decode: source-map-0.6.1 x 1,288 ops/sec ±1.05% (96 runs sampled)

decode: source-map-0.8.0 x 9,289 ops/sec ±0.27% (101 runs sampled)

chrome dev tools x 4,769 ops/sec ±0.18% (100 runs sampled)

Fastest is decode: @jridgewell/sourcemap-codec 1.4.15

Encode Memory Usage:

local code 262944 bytes

@jridgewell/sourcemap-codec 1.4.15 25544 bytes

sourcemap-codec 323048 bytes

source-map-0.6.1 507808 bytes

source-map-0.8.0 507480 bytes

Smallest memory usage is @jridgewell/sourcemap-codec 1.4.15

Encode speed:

encode: local code x 24,207 ops/sec ±0.79% (95 runs sampled)

encode: @jridgewell/sourcemap-codec 1.4.15 x 24,288 ops/sec ±0.48% (96 runs sampled)

encode: sourcemap-codec x 6,761 ops/sec ±0.21% (100 runs sampled)

encode: source-map-0.6.1 x 5,374 ops/sec ±0.17% (99 runs sampled)

encode: source-map-0.8.0 x 5,633 ops/sec ±0.32% (99 runs sampled)

Fastest is encode: @jridgewell/sourcemap-codec 1.4.15,encode: local code

\*\*\*

react.js.map - 5726 segments

Decode Memory Usage:

local code 678816 bytes

@jridgewell/sourcemap-codec 1.4.15 678816 bytes

sourcemap-codec 816400 bytes

source-map-0.6.1 2288864 bytes

source-map-0.8.0 721360 bytes

chrome dev tools 1012512 bytes

Smallest memory usage is local code

Decode speed:

decode: local code x 6,178 ops/sec ±0.19% (98 runs sampled)

decode: @jridgewell/sourcemap-codec 1.4.15 x 6,261 ops/sec ±0.22% (100 runs sampled)

decode: sourcemap-codec x 4,472 ops/sec ±0.90% (99 runs sampled)

decode: source-map-0.6.1 x 449 ops/sec ±0.31% (95 runs sampled)

decode: source-map-0.8.0 x 3,219 ops/sec ±0.13% (100 runs sampled)

chrome dev tools x 1,743 ops/sec ±0.20% (99 runs sampled)

Fastest is decode: @jridgewell/sourcemap-codec 1.4.15

Encode Memory Usage:

local code 140960 bytes

@jridgewell/sourcemap-codec 1.4.15 159808 bytes

sourcemap-codec 969304 bytes

source-map-0.6.1 930520 bytes

source-map-0.8.0 930248 bytes

Smallest memory usage is local code

Encode speed:

encode: local code x 8,013 ops/sec ±0.19% (100 runs sampled)

encode: @jridgewell/sourcemap-codec 1.4.15 x 7,989 ops/sec ±0.20% (101 runs sampled)

encode: sourcemap-codec x 2,472 ops/sec ±0.21% (99 runs sampled)

encode: source-map-0.6.1 x 2,200 ops/sec ±0.17% (99 runs sampled)

encode: source-map-0.8.0 x 2,220 ops/sec ±0.37% (99 runs sampled)

Fastest is encode: local code

\*\*\*

vscode.map - 2141001 segments

Decode Memory Usage:

local code 198955264 bytes

@jridgewell/sourcemap-codec 1.4.15 199175352 bytes

sourcemap-codec 199102688 bytes

source-map-0.6.1 386323432 bytes

source-map-0.8.0 244116432 bytes

chrome dev tools 293734280 bytes

Smallest memory usage is local code

Decode speed:

decode: local code x 3.90 ops/sec ±22.21% (15 runs sampled)

decode: @jridgewell/sourcemap-codec 1.4.15 x 3.95 ops/sec ±23.53% (15 runs sampled)

decode: sourcemap-codec x 3.82 ops/sec ±17.94% (14 runs sampled)

decode: source-map-0.6.1 x 0.61 ops/sec ±7.81% (6 runs sampled)

decode: source-map-0.8.0 x 9.54 ops/sec ±0.28% (28 runs sampled)

chrome dev tools x 2.18 ops/sec ±10.58% (10 runs sampled)

Fastest is decode: source-map-0.8.0

Encode Memory Usage:

local code 13509880 bytes

@jridgewell/sourcemap-codec 1.4.15 13537648 bytes

sourcemap-codec 32540104 bytes

source-map-0.6.1 127531040 bytes

source-map-0.8.0 127535312 bytes

Smallest memory usage is local code

Encode speed:

encode: local code x 20.10 ops/sec ±0.19% (38 runs sampled)

encode: @jridgewell/sourcemap-codec 1.4.15 x 20.26 ops/sec ±0.32% (38 runs sampled)

encode: sourcemap-codec x 5.44 ops/sec ±1.64% (18 runs sampled)

encode: source-map-0.6.1 x 2.30 ops/sec ±4.79% (10 runs sampled)

encode: source-map-0.8.0 x 2.46 ops/sec ±6.53% (10 runs sampled)

Fastest is encode: @jridgewell/sourcemap-codec 1.4.15

# License

MIT