

The State of the Art in Localization

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VINCIT

Are you sure you want to cancel the ticket sales?

OK

キャンセル

**Toby took 2,566 photos
on 10 July 2019**

Toby took 2,566 photos on 10 July 2019

Intl.NumberFormat

```
const nf = new Intl.NumberFormat('en')  
  
nf.format(2566)  
// '2,566'
```

Toby took 2,566 photos on 10 July 2019

Intl.DateTimeFormat

```
const date = new Date(2019, 6, 10) // months are fun.  
const opt = { day: 'numeric', month: 'long', year: 'numeric' }  
const dtf = new Intl.DateTimeFormat('en-GB', opt)  
  
dtf.format(date)  
// '10 July 2019'
```

Toby took 2,566 photos on July 10, 2019

Intl.DateTimeFormat

```
const date = new Date(2019, 6, 10) // months are fun.  
const opt = { day: 'numeric', month: 'long', year: 'numeric' }  
const dtf = new Intl.DateTimeFormat('en-US', opt)  
  
dtf.format(date)  
// 'July 10, 2019'
```

Toby took 2,566 photos 2 days ago

Intl.RelativeTimeFormat

Chrome 71 (2018 Dec), Firefox 65 (2019 Jan), Node 12 (2019 April)

```
const rtf = new Intl.RelativeTimeFormat('en')  
  
rtf.format(-2, 'day')  
// '2 days ago'
```

Intl.ListFormat

Chrome 72 (2019 Jan)

```
const vehicles = ['Motorcycle', 'Bus', 'Car']
const opt = { style: 'long', type: 'conjunction' }
const lf = new Intl.ListFormat('en', opt)

lf.format(vehicles)
// 'Motorcycle, Bus, and Car'
```


Toby took 2,566 photos on 10 July 2019

Intl.MessageFormat?

Not yet. :(

Toby took 2,566 photos on 10 July 2019

Intl.PluralRules

```
const pr = new Intl.PluralRules('en')
```

```
pr.select(1)    // 'one' → 'photo'
```

```
pr.select(2566) // 'other' → 'photos'
```

zero / one / two / few / many / other

Intl.PluralRules

```
const pr = new Intl.PluralRules('en', { type: 'ordinal' })
```

```
pr.select(1)    // 'one' → '1st'  
pr.select(2)    // 'two' → '2nd'  
pr.select(3)    // 'few' → '3rd'  
pr.select(2566) // 'other' → '2566th'  
pr.select(42)   // 'two' → '42nd'
```

I maintain messageformat. It's great.

Message Formatting Libraries

- FormatJS – Yahoo (2014)
- I18next – Locize (2012)
- messageformat – OpenJS Foundation (2012)
- Project Fluent – Mozilla (2017)

Front-end Environments

- React – react-intl, react-i18next, @lingui/react, ...
- Angular – <ng i18n>, ngx-translate, ...
- Vue – vue-i18n, vue-i18next, vue-intl
- Svelte – svelte-i18n

Toby took 2,566 photos on 10 July 2019

ICU MessageFormat

```
{name}'s photos
```

```
{name} took {numPhotos, plural,  
  =0 {no photos}  
  one {one photo}  
  other {{numPhotos, number} photos}  
} on {timestamp, date, long}
```

Toby took 2566 photos on 10 July 2019

i18next Translations

```
{
  "photos-title": "{{name}}'s photos",
  "photos": "one photo",
  "photos_plural": "{{count}} photos",
  "photos-taken":
    "{{name}} took $t(photos, {'count': {{numPhotos}} }) on {{tim
}
```

Alternatively, use `i18next-icu` for
MessageFormat support

Toby took 2566 photos on 10 July 2019

Polyglot.js Translations

```
{  
  "photos-title": "%{name}'s photos",  
  "photos": "one photo ||| %{numPhotos} photos",  
  "photos-taken":  
    "%{name} took %{photos_as_string} on %{timestamp_as_string}"  
}
```


Toby took 2,566 photos on 10 July 2019

Project Fluent

```
photos-title = {$name}'s photos

photos-taken = {$name} took {$numPhotos ->
  [0] no photos
  [one] one photo
  *[other] {$numPhotos} photos
} on {DATETIME($timestamp,
  day: "numeric",
  month: "long",
  year: "numeric"
)}
```

Toby took 2,566 photos on 10 July 2019

Project Fluent

```
photos-title = {$name}'s photos

long-date = {DATETIME($timestamp,
  day: "numeric",
  month: "long",
  year: "numeric"
)}

photos-taken = {$name} took {$numPhotos ->
  [0] no photos
  [one] one photo
  *[other] {$numPhotos} photos
} on {long-date}
```

Toby took 2,566 photos on 10 July 2019

ICU MessageFormat

```
{name}'s photos
```

```
{name} took {numPhotos, plural,  
  =0 {no photos}  
  one {one photo}  
  other {{numPhotos, number} photos}  
} on {timestamp, date, long}
```

Toby took 2,566 photos on 10 July 2019

Messages in XLIFF

```
<xliff xmlns="urn:oasis:names:tc:xliff:document:2.0"
  version="2.0" srcLang="en-GB" trgLang="en-US">
  <file id="namespace1">
    <unit id="key1">
      <segment>
        <source>{name}'s photos</source>
        <target>...</target>
      </segment>
    </unit>
    <unit id="key2">
      <segment>
        <source>
          {name} took {numPhotos, plural,
            =0 {no photos}
            one {one photo}
            other {{numPhotos} number1 photos1
```

Toby took 2,566 photos on 10 July 2019

Messages in JSON

```
{  
  "photos-title": "{name}'s photos",  
  "photos-taken":  
    "{name} took {numPhotos, plural, =0 {no photos} one {one phot  
}
```

Toby took 2,566 photos on 10 July 2019

Messages in YAML

```
photos-title: "{name}'s photos"  
photos-taken: |  
  {name} took {numPhotos, plural,  
    =0 {no photos}  
    one {one photo}  
    other {{numPhotos, number} photos}  
  } on {timestamp, date, long}
```

Translation Services

- locize.com
- lokalise.co
- phraseapp.com
- poeditor.com
- transifex.com
- weblate.org
- ...

TRANSPILE ALL THE
THINGS!



webpack.config.js

```
npm i -D messageformat messageformat-loader
```

```
module.exports = {  
  ...,  
  module: {  
    rules: [  
      {  
        test: /\bmessages\.(json|ya?ml)$/ ,  
        type: 'javascript/auto', // required to load JSON as JS  
        loader: 'messageformat-loader',  
        options: { locale: ['en-GB'] }  
      }  
    ]  
  }  
}
```

Toby took 2,566 photos on 10 July 2019

```
import messages from './messages.yamll'  
  
const msg = messages['photos-taken']  
const timestamp = new Date(2019, 6, 10)  
  
msg({ name: 'Toby', numPhotos: 2566, timestamp })  
// 'Toby took 2,566 photos on 10 July 2019'
```

Toby took 2,566 photos on 10 July 2019

```
npm i react-message-context
```

```
import React from 'react'
import { Message, MessageProvider } from 'react-message-context'
import messages from './messages.yaml'

const Toby = ({ numPhotos, timestamp }) =>
  <Message id="photos-taken" name="Toby"
    numPhotos={numPhotos} timestamp={timestamp} />

export const TobyApp = () =>
  <MessageProvider messages={messages}>
    <Toby numPhotos={2566} timestamp={new Date(2019, 6, 10)} />
  </MessageProvider>

// 'Toby took 2,566 photos on 10 July 2019'
```

To start, localization doesn't have to make sense.

```
export function msg(strings, ...values) {  
  if (typeof strings === 'string') return strings  
  let res = ''  
  for (let i = 0; i < values.length; ++i) {  
    res += strings[i] + values[i]  
  }  
  return res + strings[strings.length - 1]  
}  
  
const name = 'Toby'  
msg(name + 's photos') // 'Toby's photos'  
msg`${name}'s photos`  // 'Toby's photos'
```

It can be just as dumb in React.

```
import React from 'react'

export const Msg = ({ children }) => children

function TobyTitle() {
  const name = 'Toby'
  return <Msg>{name}'s photos</Msg>
}
```

Kotoistamisen huippuluokka

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