



all the things

Steven R. Loomis, IBM

*“i18n becoming increasingly important
to the global adoption of Node.js”*

Rod Vagg (@rvagg), “The Future of Node.js”, July 2016

About This Person...

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- IBM Global Foundations Technology Team

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 - Globalization Pipeline

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- Node
 - Intl WG Facilitator
 - CTC Observer

Agenda

- What is Intl?
- How do I get it?
- How do I use it?
- Where is it going?
- Are there other options?
- What about Front-end and IoT

ECMA-262/ECMA-402

- ECMA-262: ECMAScript language
 - Often called JavaScript
 - Specifies Unicode text even in 1st ed (1997)

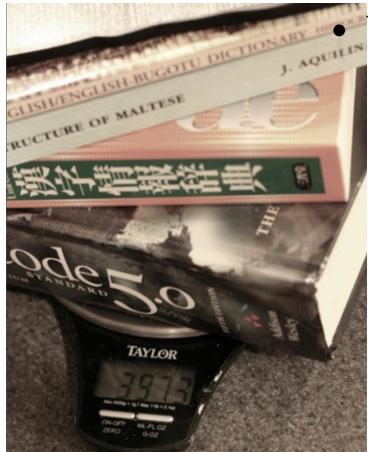
ECMA-262/ECMA-402

- ECMA-262: ECMAScript language
 - Often called JavaScript
 - Specifies Unicode text even in 1st ed (1997)
- ECMA-402: Intl API
 - *Optional*
 - 1st Ed. 2010... 3rd Ed 2016

Intl in Node.js

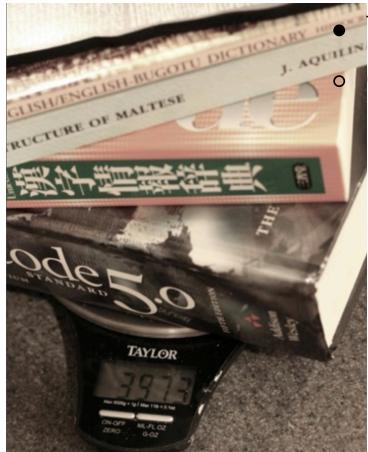
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Intl in Node.js



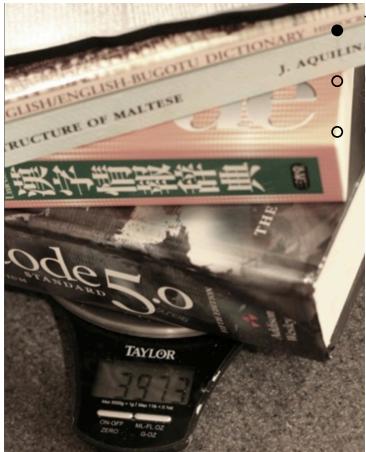
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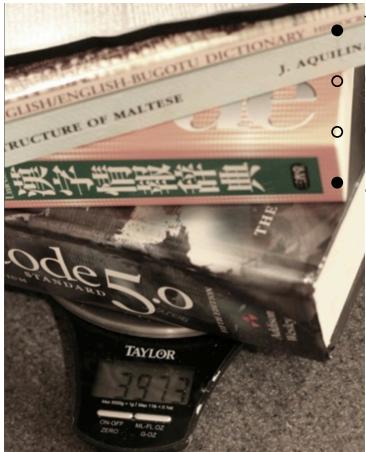
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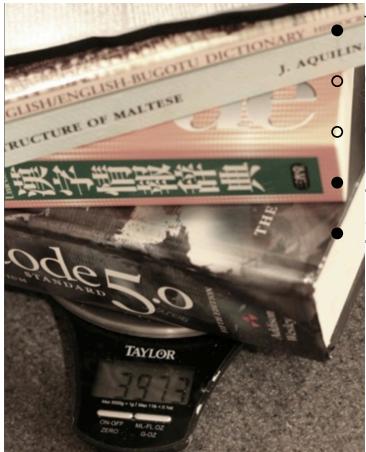
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- 2015: v0.12+ downloads: Intl available by default

Intl in Node.js



- Unicode support / Intl implementation from v8
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- 2015: v0.12+ downloads: Intl available by default
- 2016: v6.x+: source tree builds Intl by default.

API

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Intl

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Intl

- `new Intl.NumberFormat(...)`

API

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- `new Intl.DateTimeFormat(...)`

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Intl

- `new Intl.NumberFormat(...)`
- `new Intl.DateTimeFormat(...)`
- `new Intl.Collator(...)`

IBM 77 Collator



By ArnoldReinhold (Own work) CC BY-SA 3.0 via Wikimedia Commons
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Familiar Objects

- Date
- Number
- String

Date

Date

- Date().toString()

Date

- Date().~~toString()~~
- Date().toLocaleString()

Date

- Date().toString()
- Date().toLocaleString()

```
new Date().toLocaleString('en')
//11/3/2016, 1:46:28 PM
```

```
new Date().toLocaleDateString('en',
{month:'long', day: 'numeric', year: 'numeric'})
//November 3, 2016
```

```
new Date().toLocaleTimeString('en')
//1:46:28 PM
```

Number

Number

- `Number().toString()`

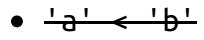
Number

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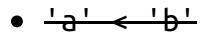
```
new Number(2016).toLocaleString() //2.016
new Number(1.12).toLocaleString('fr', {style: 'percent'}) //112 %
new Number(2016).toLocaleString('et-u-nu-ethi') //፳፻፲፬
new Number(2016).toLocaleString('et-u-nu-ethi',
  {useGrouping: false}) //፳፻፲፬
```

String

String

- 

String

- 
- 

String

- ~~'a' < 'b'~~
- ~~'ü' == 'Ü'~~
- ~~'I'.toLowerCase() == 'i'.toLowerCase()~~

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- "abc".localeCompare("ábc")

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- ('u' + 'ü').normalize("NFC") // "ü"

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- ('u' + 'i').normalize("NFC") // "ü"
- 'I'.toLocaleLowerCase('tr') == 'ι'.toLocaleLowerCase('tr')
- 'Πατάτα'.toLocaleUpperCase('el') == 'ΠΑΤΑΤΑ'

String

- ~~'a' < 'b'~~
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- 'I'.toLocaleLowerCase('tr') == 'ı'.toLocaleLowerCase('tr')
- 'Πατάτα'.toLocaleUpperCase('el') == 'ΠΑΤΑΤΑ'
 - *coming soon to a v8 near you - #9445*
 - API available today

Locale Parameter

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- Server Side?

```
var Negotiator = require('negotiator');

http.createServer(function(req, res) {
  new Date().toLocaleDateString(new Negotiator(req).languages());
});
```

Locale Parameter

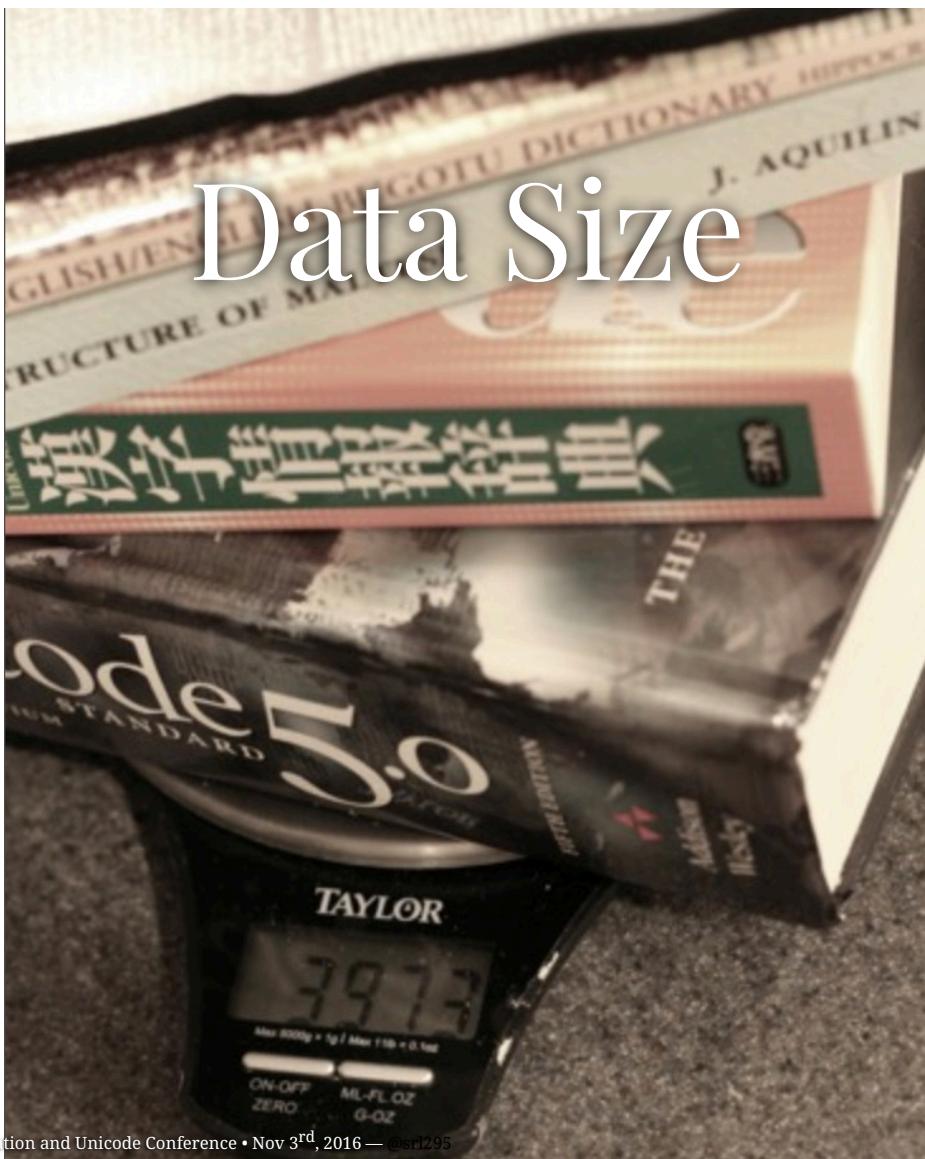
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- <https://github.com/nodejs/Intl/issues/10>

Data Size



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Data Size

- node

Data Size

- node
 - about 25 MiB

Data Size

- node
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- ICU's locale data

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Packaging

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node --icu-data-dir=... app.js
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- `./configure --with-intl=full-icu --download=all`

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Intl working group

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- Functionality & compliance (standards: ECMA, Unicode...)



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- Functionality & compliance (standards: ECMA, Unicode...)
- Support for Globalization/Internationalization issues
- Guidance and Best Practices
- Refinement of existing Intl implementation



ECMA-402 process

- TC39 meeting

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- Collaborate: <https://github.com/tc39/ecma402/>

ECMA-402 future

General trend:

- “low level” support vs “high level” formatters

ECMA-402 Upcoming:

- Format to Parts

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 - **November 2016**

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 - ~~You have 0 friend(s)~~
 - **one** You have one friend, **other** You have 0 friends, **other** You have 16,777,216 friends

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 - English: 0 dogs, 1 dog, 2 dogs, 3 dogs, 4 dogs

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 - Canonical Locales, Locale info
 - for building your own lookups

In the Future:

- MessageFormat and other Formatters
- BreakIterator (text segmentation)

Challenges/What's next

- data size/ data stability

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- *even better discoverability

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- ECMA compliance testing
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Node libraries

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- Intl.js — *latest ECMA-402 features*

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- Intl.js — *latest ECMA-402 features*
- cldr.js — *access to full CLDR data*
- strong-globalize — *tools for globalizing JS code and HTML templates*

The front-end landscape

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- ... as of November 2016, great!

The front-end landscape

- ... as of November 2016, great! :+1:

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- go use Intl

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- ... as of November 2016, great! :+1:
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The IoT landscape

- node builds tested with cross-platform build
- build node with `--without-intl` (pre v.6: `--with-intl=none`) to disable Intl

The IoT landscape

- node builds tested with cross-platform build
- build node with `--without-intl` (pre v.6: `--with-intl=none`) to disable Intl
 - more and more features turned off without ICU

Thanks/Q&A

- Social: @srl295
- Slides/Contact: <https://git.io/srl295>
- Email: srloomis@us.ibm.com
- Mozilla MDN Intl: mzl.la/1oS0tvf
- Node Intl WG: <http://github.com/nodejs/Intl>