NetBeans support for EcmaScript 6

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About Me

- Software and Data Architect
- Adjunct Lecturer @ di.uoa.gr (University of Athens) teaching Software Engineering
- Managing Director @ niovity.com
- Early Java enthusiast (since 1997)
- Diving into JavaScript since 2010

The JavaScript Ecosystem

Brief history

1993: First web browser
Mosaic by NCSA, University of Illinois

1994: Netscape browser
Netscape Navigator (code named Mozilla)

1995: Brendan Eich develops JavaScript
Netscape Navigator 2.0 & Netscape Enterprise Server

The core of JavaScript

A dynamically typed, interpreted language

- that was intentionally designed to look like Java
- supporting Scheme-like functions (functional paradigm)
- and Self-like prototypes (object-oriented paradigm)

Douglas Crockford, "JavaScript: The good parts", 2008, O'Reilly Media

Example

https://github.com/monsur/jscache

```
function Cache(maxSize, debug, storage) {
  this.maxSize_ = maxSize || -1;
  this.debug_ = debug || false;
  this.storage_ = storage ||
                  new Cache.BasicCacheStorage();

  this.fillFactor_ = .75;

  this.stats_ = {};
  this.stats_['hits'] = 0;
  this.stats_['misses'] = 0;
}
```

The first 20 years

1996

- Microsoft JScript engine (in IE 3.0 & IIS)
- Mozilla SpiderMonkey JavaScript engine (Netscape Navigator 3.0)
- Submission of JavaScript to ECMA International
- Opera Browser
- NetBeans IDE!

The first 20 years

1997

- Dynamic HTML (IE 4)
- ES1 (ECMA-262 standard)

The first 20 years

1998

- Netscape releases the source of Navigator
- Mozilla Foundation
- Gecko HTML engine
- Rhino JavaScript engine (Java)
- ES2 (ISO/IEC 16262 standard)

The first 20 years

1999

- AJAX, XMLHTTPRequest (IE 5)
- Macromedia Flash
- ES3
  - Regular expressions
  - Exceptions, try/catch blocks
  - `do...while`, `in`, `instanceof`
  - Enhancements in arrays, strings, numbers

The first 20 years

2000

- ES4 (Never released, abandoned)
- Adobe ActionScript, ES4 derivative (classes, static typing, etc)

The first 20 years

2001

- Douglas Crockford
  - The World's Most Misunderstood Programming Language
  - JSON

The first 20 years

2002

- Mozilla Suite 1.0
- Firefox
- Outlook Web App (AJAX goes mainstream)
- JSON.org

The first 20 years

2003

- Safari Web Browser
- WebKit & Nitro engines (forks of KDE HTML/JS engines)

The first 20 years

2004

- Google Mail (AJAX for the masses)
- Dojo toolkit

The first 20 years

2005

- Jesse James Garrett, Ajax: A New Approach to Web Applications
- prototype.js, the dollar function $()

The first 20 years

2006

- jQuery
- Yahoo! User Interface library

The first 20 years

2007

- PC World, Netspace Navigator: the best tech product of all time

The first 20 years

2008

- Google Chrome
- V8 JavaScript engine
- Chromium Project

The first 20 years

2009

- ES5 (ES3.1 essentially)
- node.js (server-side JS)
- CommonJS (JS modules)
- AngularJS
- PhoneGap, hybrid JS apps (now Apache Cordova)

The first 20 years

2009

- CoffeeScript, the first language to transpile to JS
- underscore.js, functional programming in JS (superseded by lodash.js)

The first 20 years

2010

- Backbone.js, MVC library
- Express.js, Web framework for node.js
- Knockout.js, MVVM library
- PhantomJS, Headless Webkit

The first 20 years

2011

- Data-driven documents with D3.js
- Asynchronous Module Definitions (AMD) with require.js
- Ember.js, MVC library

The first 20 years

2012

- Oracle releases Nashorn JavaScript engine (Java), the default JavaScript engine in Java 8
- Meteor.js, web framework (node.js, hybrid, reactive)
- TypeScript by Microsoft (transpiled to JS)

The first 20 years

2013

- React framework by Facebook
- asm.js by Mozilla
- ElectronJS by Github (atom-shell)

The first 20 years

2014

- HTML5 - APIs everywhere
- The (unofficial) death of XML?

The first 20 years

2015

- ES6 (Harmony, ES2015)
- React Native (hybrid apps)
- WebAssembly (assembly for the web)

JavaScript is here to stay!

- JavaScript *is the lingua franca* of the Web rapidly turning into a general-purpose programming language with a massive usage base
- ES2016 (minor additions to ES6)
- ESNext (next features, like async/await)

Apache NetBeans

is here to stay, too!

JavaScript Support in NetBeans 8.2

- Built-in support for JS and a multitude of tools, libraries and frameworks
- Support for ES6 and beyond

Built-in JS Support

- Syntax highlighting
- Code folding
- Code completion and analysis
- Refactoring
- Structural navigation
- Lints/Hints
- Integrated debugger

And more

- Bracket matching
- Go to declaration
- JSDoc
- JSON
- JS embedding (HTML, PHP, etc)

Developing JS with Netbeans

- Embedded web server (run your apps from within the IDE)
- Automagical update in the web browser (Embedded Webkit or Chrome with plugin)

Tools and Libraries

- Inherent support for JS libs/tools at the source level
- Node.js and npm
- Grunt, Gulp, Bower, Require.js, Karma, Express.js, Babel, Webpack, ...
- LESS, SASS
- Apache Cordova
- Oracle JET
- NB Plugins

ES6 Features

- Modules with `import` and `export`
- Constants with `const`
- Block scoped variables with `let`
- Arrow functions with `=>`
- Classes with `class` and `extends` and `super`
- String interporation with `` `${var}` ``

ES6 Features

- Default parameter values, rest & spread operators
- Desctructuring of objects and arrays
- Promises
- Enhanced object literals
- New collections (Set, Map, WeakSet, WeakMap)

Not covered here

- Generators & iterators
- Various other goodies, such as
  - Symbols
  - Metaprogramming (Proxies & Reflection)
  - Math, String, Number enhancements
  - Binary and octal literals
  - and more…

Example

References

A brief history of JavaScript

A re-introduction to JavaScript

ECMAScript 6 New Features: Overview & Comparison

NB Wiki

ECMAScript 6, Modules, Babel, Webpack, and NetBeans IDE

Thank you!

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