JS++

JS++ is a programming language for web development that extends JavaScript with a sound type system. It includes imperative, object-oriented, functional, and generic programming features.

Contents

JS++	
Paradigm	Imperative, structured, object-oriented, functional, generic
Designed by	Roger Poon, Anton Rapetov
Developer	Onux
First appeared	8 October 2011
Typing discipline	Gradual, static, dynamic
License	BSD License
Filename extensions	.jspp, .js++, .jpp
Website	www.onux.com /jspp/ (https://www. onux.com/jspp/)
Influenced by	
C, C++, C#, Java, JavaScript	

History

JS++ first appeared on October 8, 2011.[1][2][3] The modern implementation was announced at DeveloperWeek 2016[4] and released on May 31, 2016.[5][6][7][8] The language is designed by Roger Poon and Anton Rapetov.

Syntax

Type annotations

Since JS++ is a superset of JavaScript, declaring types for variables is optional.

```
int x = 1; // declares the variable x with an "internal type" (JS++ type)
var y = 2; // declares the variable y with an "external type" (JavaScript type)
bool z = true; // declares the variable z with an "internal type" (JS++ type)
```

Features

JS++ features a type system that is sound.[9][10]

JS++ is able to efficiently analyze out-of-bounds errors at compile time.[11][12][13]

Development tools

Compiler

The JS++ compiler is available for Windows, Mac OS X, and Linux. The compiler generates JavaScript output.

Editor integration

JS++ integrates with various code editors including Visual Studio Code, Atom, and Sublime Text.[14][15][16]

Build tools

JS++ can be integrated with third-party build tools like Webpack.[17]

Release history

Version number	Release date	Changes
0.01	8 October 2011	Alpha version, initial release
0.011	10 October 2011	Alpha version
0.012	25 October 2011	Alpha version
0.013	29 January 2012	Alpha version
0.014.1	15 August 2012	Alpha version
0.4.1	31 May 2016	Beta version, array and callback types, character literals, integral suffixes, removed ECMAScript ASI
0.4.2	18 October 2016	Modules, function overloading, dead code elimination, editor integrations
0.4.2.1	24 October 2016	Bug fixes
0.4.2.2	17 November 2016	Source map debugging
0.4.2.4	25 December 2016	Support for Mac OS X, C-style casts, callback and array conversions
0.5.0	13 March 2017	Classes
0.5.1	26 March 2017	'foreach' loops
0.5.2	27 July 2017	BSD License, Interfaces, Abstract Classes, Virtual Methods, Auto-boxing
0.7.0	27 October 2017	All ECMAScript 3 features via Array<T> and Standard Library
0.8.0	15 March 2018	Generic programming, Dictionary<T>, multi-line strings, .js++ file extension
0.8.1	27 March 2018	auto, catch-all clauses, standard library modules for handling time, bug fixes
0.8.4	23 May 2018	New string functions, advanced generics, bug fixes, standard library expansion
0.8.5	2 June 2018	Bug fixes
0.8.10	24 November 2018	Faster compile times, stacks, queues, Unicode, Base64, generic default constraint rules
0.9.0	11 January 2019	Efficient compile time out-of-bounds error analysis
0.9.1	1 July 2019	Bug fixes
0.9.2	18 October 2019	Final (immutable) variables and default to 64-bit for macOS Catalina

See also

- TypeScript
- PureScript

References

1. "JavaScript++: New, Powerful Language for Better Web Development" (https://web.archive.o rg/web/20111017221312/http://jspp.javascript.am/). 17 October 2011. Archived from the original (http://jspp.javascript.am/) on 17 October 2011.
2. "C++ et Javascript = Javascript++" (https://web.archive.org/web/20111012143226/http://ww w.lafermeduweb.net/veille/c-et-javascript-javascript-123284133702156289.html). 12 October 2011. Archived from the original (http://www.lafermeduweb.net/veille/c-et-javascript-javascript-123284133702156289.html) on 12 October 2011.

3. "Index of /downloads" (https://web.archive.org/web/20111018172906/http://jspp.javascript.a m/downloads/). 18 October 2011. Archived from the original (http://jspp.javascript.am/downlo ads/) on 18 October 2011.

4. "Javascript Conference - DeveloperWeek 2016 - February 12-18" (https://web.archive.org/w eb/20160213204925/http://www.developerweek.com/javascript-conference/). 13 February 2016. Archived from the original (http://www.developerweek.com/javascript-conference/) on 13 February 2016.

5. "JS++ Goes Into Public Beta" (https://www.onux.com/jspp/blog/jspp-goes-into-public-beta/). May 31, 2016.

6. Alex Handy (June 1, 2016). "Onux seeks to fix JavaScript's lack of type safety" (http://sdtime s.com/onux-seeks-fix-javascripts-lack-type-safety/). SD Times.

7. Paul Krill (June 6, 2016). "New compiler tackles JavaScript's weak typing" (https://www.info world.com/article/3079092/javascript/new-compiler-tackles-javascripts-weak-typing.html). InfoWorld.

8. Catalin Cimpanu (June 9, 2016). "jQuery 3.0 Released and Other JavaScript News" (https:// news.softpedia.com/news/jquery-3-0-released-and-other-javascript-news-505064.shtml). Softpedia.

9. "The JS++ Type System" (https://www.onux.com/jspp/tutorials/type-system). *www.onux.com*.

10. Adrian Bridgwater (June 13, 2016). "Onux JS++, an answer to JavaScript 'brittle' type safety?" (http://www.computerweekly.com/blog/Open-Source-Insider/Onux-JS-an-answer-to- JavaScript-brittle-type-safety). Computer Weekly.

11. Fabio Díaz (January 23, 2019). "JS++, the JavaScript superset, is getting rid of out-of- bounds errors" (https://www.akuaroworld.com/js-the-javascript-superset-is-getting-rid-of-out- of-bounds-errors/). Akuaroworld.

12. Christina Cardoza (January 16, 2019). "JS++ programming language looks to solve out-of- bounds errors" (https://sdtimes.com/softwaredev/js-programming-language-looks-to-solve-o ut-of-bounds-errors/). SD Times.

13. "JS++ 0.9.0: Efficient Compile Time Analysis of Out-of-Bounds Errors" (https://www.onux.co m/jspp/blog/jspp-0-9-0-efficient-compile-time-analysis-of-out-of-bounds-errors/). January 11, 2019.

14. "JavaScript superset JS++ adds dead code elimination and more" (http://www.computerworl d.com/article/3132920/application-development/javascript-superset-js-adds-dead-code-elimi nation-and-more.html). Computerworld. October 19, 2016.

15. Christina Cardoza (October 19, 2016). "JS++ 0.4.2 released with code editor integrations, modules and dead code elimination" (http://sdtimes.com/js-0-4-2-released-code-editor-integr ations-modules-dead-code-elimination/). SD Times.

16. Geneva Clark (October 20, 2016). "JS++ 0.4.2 Release - Upgraded With Modular Design, Dead Code Elimination, and Multiple Code Editors" (https://www.zeolearn.com/magazine/js pp-0.4.2-release-with-upgrades). Zeomag.

17. "GitHub - IngwiePhoenix/jspp-webpack-poc" (https://github.com/IngwiePhoenix/jspp-webpa ck-poc). 7 December 2018 – via GitHub.