

Debugging Node.js Applications

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Node.js in the wild
April 17, 2013

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Sample Code

Download and play along:

<https://github.com/NeoPhi/debugging>

Slides indicate example code, if any, at bottom.

Debugging Mindset

Debugging is just *problem solving*!

Fix the problem, not the blame.

Don't assume it - prove it!

The *system* probably isn't at fault.

Rubber Ducks



console.*

What is going on?

- console.log / console.info
- console.error / console.warn
- console.dir
- console.trace
- console.assert

Beyond console

If it was handy once why not keep it around?

- <https://github.com/visionmedia/debug>
 - Small debugging utility
- <https://github.com/flatiron/winston>
 - Multi-transport async logging library
- <https://github.com/trentm/node-bunyan>
 - JSON logger library

Interactive Debugging

Getting at the stack and state.

- `node debug program.js`
 - Command line debugger
- <https://github.com/dannycoates/node-inspector>
 - Web Inspector based debugger
 - `npm install -g node-inspector@0.1.10`
- `node --debug / node --debug-brk`
 - debugger
 - `kill -USR1 PID`

Profiling for Speed

Why is it taking so long?

- `console.time / console.timeEnd`
 - Quick and simple
- <https://github.com/sivy/node-statsd>
 - Client for Etsy StatsD server
- <https://github.com/sidorares/node-tick>
 - Runnable v8.log processor

Profiling for Size

Why is it using so much memory?

- <https://github.com/lloyd/node-memwatch>
 - Library to keep an eye on your memory usage, and discover and isolate leaks
- <https://github.com/dannycoates/v8-profiler>
 - Doesn't work with newer node.js versions

Maybe it is a Module?

Sanity checking modules.

- npm rebuild
 - Handy after changing node.js versions
- npm outdated / npm ls / npm update
 - Handy after updating package.json
- <https://github.com/pksunkara/npm-police>
 - Handy to check for module bug fixes

Other Resources

I've not used these but you might want to:

- <https://github.com/nodetime/nodetime>
 - Performance Profiler and Monitor
- <https://github.com/newrelic/node-newrelic/>
 - New Relic agent code base
- <https://github.com/chrisa/node-dtrace-provider>
 - Native DTrace probes
- <http://www.jetbrains.com/webstorm/>
 - JavaScript IDE with debugging support