Transparent Object Proxies for JavaScript (Artifact)

Matthias Keil[1], Sankha Narayan Guria[2], Andreas Schlegel[1], Manuel Geffken[1], and Peter Thiemann[1]

1   Institute for Computer Science
    University of Freiburg
    Freiburg, Germany
    `{keilr,schlegea,geffken,thiemann}@informatik.uni-freiburg.de`
2   Indian Institute of Technology Jodhpur
    Jodhpur, India
    `sankha@iitj.ac.in`

Abstract

This artifact provides two prototype extensions of the SpiderMonkey JavaScript engine. Both extensions implement alternative designs for *transparent proxies* that are better suited for use cases such as certain contract wrappers and access restricting membranes.

The first prototype extends the proxy handler by an *isTransparent* trap that regulates the proxy's transparency. The second prototype implements a new global object *TransparentProxy* that implements the constructor for transparent proxy objects.

1   Scope

The package is designed to evaluate the impact of transparent proxies on benchmark performance and to count object comparisons involving JavaScript proxies. In particular, it allows to measure the performance impact when introducing transparent object proxies and it allows to count and to classify object comparisons.

2   Content

The artifact package includes:

- the source code of both modified SpiderMonkey shells;
- detailed instructions for using the artifact and for rebuilding it from scratch, provided as an `index.html` file.

A pre-compiled SpiderMonkey shell is not part of the source package.

3   Getting the artifact

The artifact endorsed by the Artifact Evaluation Committee is available free of charge on the Dagstuhl Research Online Publication Server (DROPS). The latest version of our code can be checked out from the GitHub repository: `https://github.com/sankha93/js-tproxy`.

4   Tested platforms

The artifact is known to work on any POSIX platform with at least 8 GB of free space on disk and at least 2 GB of free space in RAM. The SpiderMonkey build instructions can be found at the SpiderMonkey Build Documentation MDN page.

5   License

Mozilla Public License, v. 2.0. (`http://mozilla.org/MPL/2.0/`)

6   MD5 sum of the artifact

bb4092d8e0d20150e35b41821f35d662

7   Size of the artifact

332 MB