Toy Browser (TB)

Release TB 5.2

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Introduction

Toy Browser is a free and open-source web browser based on the Chromium web browser. Toy Browser is a privacy-focused browser, which automatically blocks most advertisements and website trackers in its default settings. Users can turn on optional ads that reward them for their attention in the form of Basic Attention Tokens (BAT), which can be used as a cryptocurrency or to make payments to registered websites and content creators.

Prerequisites

For macOS development environment, you will need the prerequisites below to build Toy Browser on macOS 10.15+.

1. macOS SDK 14.0 is needed. This is bundled with Xcode 15.0.

2. Node.js active LTS version (v20) - brew install node or can also use nvm. If node --version fails when installing node@20 through Homebrew or reports a different version, run brew link --force --overwrite node npm - v10+ (or Yarn). npm is automatically installed if you install NodeJS through Homebrew. If you'd like to use yarn instead of npm you can use yarn import to create a yarn.lock file from our package-lock.json.

3. Python - 2.7 and 3+

   - Note: On macOS 12.3 and higher Python 2.7 is no longer included by default and you will have to install it manually

Software Organization

1. **reduxjs/toolkit** (Version 1.8.6):
   - Provides utilities for efficient Redux development, including simplified syntax and optimized performance.

2. **web3.js** (Version 1.58.0):
   - JavaScript library for interacting with the Solana blockchain.

3. **async** (Version 3.2.4):
   - Provides functions for managing asynchronous operations in JavaScript.

4. **bignumber.js** (Version 9.0.2):
   - Library for working with arbitrary-precision numbers in JavaScript.

5. **core-js** (Version 3.9.1):

- Provides polyfills for new ECMAScript features.

6. **date-fns** (Version 2.15.0):
   - Utility library for manipulating dates in JavaScript.

7. **jszip** (Version 3.6.1):

JSZip is a JavaScript library that provides functionality for creating, reading, and editing ZIP files directly in the browser. It allows developers to work with ZIP files entirely within a client-side JavaScript environment, without needing server-side processing.

In our toy browser application, we utilize jszip version 3.6.1. To use jszip in our application first we need to include JsZip library in our project. This is done by downloading the librart and including it manually in our HTML file using a package manager, for example <script src="https://cdnjs.cloudflare.com/ajax/libs/jszip/3.6.0/jszip.min.js"></script> then we create a new zip file using JSZip by nstantiating a new `JSZip` object.

8. **page-metadata-parser** (Version 1.1.3):
   - Parses metadata from web pages.

9. **prettier-bytes** (Version 1.0.4):
   - Formats byte sizes in a human-readable format.

10. **qr-image** (Version 3.2.0):
    - Generates QR codes as images.

11. **react-json-view-lite** (Version 0.9.5):
    - Renders JSON data in a collapsible and interactive format.

12. **react-router**, **react-router-dom**:
    - Libraries for handling routing in React applications.

13. **react-syntax-highlighter** (Version 15.5.0):
    - Renders syntax-highlighted code snippets in React applications.

14. **react-window** (Version 1.8.5):
    - Provides tools for efficiently rendering large lists or grids in React.

15. **redux-act** (Version 1.8.0):
    - Library for creating Redux actions and action creators.

16. **redux-logger** (Version 3.0.6):
    - Middleware for logging Redux actions and state changes.

17. **redux-thunk** (Version 2.3.0):
    - Middleware for handling asynchronous actions in Redux.

18. **throttleit** (Version 1.0.0):
    - Provides utilities for throttling function calls.

19. **webext-redux** (Version 2.1.4):
   - Facilitates communication between Redux stores and WebExtensions.

20. **webtorrent** (Version 0.105.6):
   - Enables streaming of torrents in the browser using WebRTC. WebTorrent is a streaming torrent client for the web browser and the Node.js environment. It allows users to stream torrents directly in the browser without the need for any additional plugins or extensions.

In our toybrowser application we utilize webtorrent version 0.105.6. Similar to JSZip we nee dto include WebTorrent library in our project to use it. We include it via script tag, for example, <script src="https://cdn.jsdelivr.net/npm/webtorrent/webtorrent.min.js"></script>. After this we create **WebTorrent Client**, for example, var client = new WebTorrent();

21. **axios** (Version 1.6.0):
   - Axios is a popular Promise-based HTTP client for JavaScript. It is commonly used for making HTTP requests from web browsers and Node.js environments. Axios simplifies the process of sending asynchronous HTTP requests and handling responses, providing features such as request and response interception, automatic JSON parsing, and error handling.

2. **loader-utils** (Version 2.0.4):
   - Loader-utils is a utility library commonly used in Webpack loaders. It provides various helper functions for working with loader-related tasks, such as generating unique identifiers, parsing query parameters, and creating file paths. Loader-utils simplifies the development of Webpack loaders by offering a set of convenient functions for common tasks.

3. **json5** (Version 1.0.1):
   - JSON5 is an extension of the JSON format that allows for more human-readable JSON data. It adds support for features such as comments, trailing commas, and single-quoted strings, which are not allowed in standard JSON. JSON5 provides a more flexible and expressive way to write JSON-like data structures while maintaining compatibility with existing JSON parsers.

We particularly utilize JSON5 version 1.0.1 for our browser application. To use JSON5 library in our browser application we first include them manually in our html file, for instance <script src="https://cdnjs.cloudflare.com/ajax/libs/json5/2.2.0/json5.min.js"></script>. Then to parse JSON5 we use JSON5.parse() method.

4. **protobufjs** (Version 7.2.4):
   - Protobufjs is a JavaScript implementation of Protocol Buffers, Google's language-neutral, platform-neutral, extensible mechanism for serializing structured data. It allows developers to define data structures using a schema language and then generate code for working with those structures in various programming languages, including JavaScript. Protobufjs simplifies the process of working with complex data structures and enables efficient serialization and deserialization of data.

Here are the descriptions for each of the specified dependencies:

1. **recharts** (Version 2.0.9):
   - Recharts is a charting library built with React and D3. It provides a set of customizable and interactive

chart components for visualizing data in web applications.

2. **redux** (Version 4.1.0):
   - Redux is a predictable state container for JavaScript applications. It provides a centralized store for managing application state and enables predictable state updates through actions and reducers.

In our toy browser application, we utilize redux version 4.1.0. We first install redus via npm using bash script, for instance, npm install redux react-redux. After this we set up redux store using createsStore() method. This store holds the state of our application. Then we define reducers. It specifies how our application's state changes in response to actions. We then connect redux to react using connect() method. Finally, we render our redux-connected components.

3. **sass-loader** (Version 10.4.1):
   - Sass-loader is a webpack loader for compiling Sass/SCSS files into CSS. It allows developers to import Sass files directly into their JavaScript modules.

4. **sinon** (Version 7.5.0):
   - Sinon is a testing utility for JavaScript applications. It provides tools for creating spies, stubs, and mocks, as well as utilities for controlling timers, promises, and more.

5. **storybook** (Version 7.5.3):
   - Storybook is a development environment for building UI components in isolation. It enables developers to develop, test, and showcase UI components independently of the main application.

6. **stream-browserify** (Version 3.0.0):
   - Stream-browserify is a polyfill for the Node.js stream module in browser environments. It allows Node.js-style streams to be used in web applications.

7. **stream-http** (Version 3.2.0):
   - Stream-http is a polyfill for the Node.js http module in browser environments. It allows applications to make HTTP requests using the Node.js http API in web browsers.

8. **style-loader** (Version 2.0.0):
   - Style-loader is a webpack loader for injecting CSS styles into the DOM. It enables developers to import CSS files directly into their JavaScript modules.

9. **styled-components** (Version 5.3.11):
   - Styled-components is a CSS-in-JS library for styling React components. It allows developers to write CSS directly within their JavaScript code using tagged template literals.

10. **teamcity-service-messages** (Version 0.1.14):
   - Teamcity-service-messages is a library for interacting with TeamCity build agents. It provides utilities for sending service messages to TeamCity during the build process.

11. **terser** (Version 5.14.0):
   - Terser is a JavaScript minifier and mangler. It is used to minimize the size of JavaScript bundles by removing unnecessary whitespace, comments, and renaming variables.

In our toy browser application we use terser version 5.14.0. To utilize this library first we install it in our browser application using npm bash script, for instance, npm install terser --save-dev. In our context, it is used integrated with build tools such as webpack, roolup, to automate the minification

process as part of our application's pipeline.

12. **timers-browserify** (Version 2.0.12):
   - Timers-browserify is a polyfill for the Node.js timers module in browser environments. It provides APIs for creating and managing timers in web applications.

13. **ts-jest** (Version 26.5.6):
   - Ts-jest is a TypeScript preprocessor for Jest. It allows developers to write Jest tests using TypeScript and provides type checking and other TypeScript features within test files.

14. **ts-loader** (Version 8.4.0):
   - Ts-loader is a webpack loader for compiling TypeScript files into JavaScript. It enables developers to import TypeScript files directly into their JavaScript modules.

15. **typesafe-actions** (Version 2.2.0):
   - Typesafe-actions is a library for creating type-safe Redux actions and action creators. It provides utilities for defining action types and generating action creator functions with TypeScript type safety.

16. **typescript** (Version 4.9.4):
   - TypeScript is a programming language and compiler that adds optional static typing to JavaScript. It enables developers to write more scalable and maintainable code by catching errors at compile time.

17. **typescript-plugin-css-modules** (Version 3.4.0):
   - Typescript-plugin-css-modules is a TypeScript plugin for working with CSS modules. It provides type definitions for CSS module classes and enables TypeScript to recognize and validate CSS module imports.

18. **typescript-plugin-styled-components** (Version 2.0.0):
   - Typescript-plugin-styled-components is a TypeScript plugin for working with styled-components. It provides type definitions for styled-components and enables TypeScript to recognize and validate styled-components syntax.

19. **url-loader** (Version 4.1.1):
   - Url-loader is a webpack loader for handling file imports in JavaScript modules. It allows developers to import files such as images and fonts as data URLs or file URLs depending on their size.

20. **webpack** (Version 5.89.0):
   - Webpack is a module bundler for JavaScript applicationsIt takes modules with dependencies and generates static assets representing those modules, which are optimized for deployment in a browser environment.

. For our resume application we particularly use webpack version 5.89.0. Similar to other dependencies we first install this dependency using bash script such as npm install webpack webpack-cli --save-dev. After that we configure the it using configuration file name webpack.config.js. This file specifies entry points, output paths, loaders, plugins, and other settings for webpack.

21. **webpack-cli** (Version 5.1.4):
   - Webpack-cli is the command-line interface for Webpack. It provides utilities for running webpack builds, configuring webpack settings, and managing webpack projects from the command line.