casinocoin-libjs typescript refactor

CasinoCoin Foundation Bounty

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Tasks I've Done Thus Far

- All Source Files Refactored to Standards Compliant ES2015

- Extended Recommended Typescript Linting Rules

- All Non-Import Statements Pass Typescript Lint Rules

- Webpack Replaces Gulp for Execution

  - Dedicated Development and Build Configurations

  - Leverages Dashboard and Bundle Analyzer (treemap)

Does not Compile

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Identified Problems (1)

- Ripple PR 816

  - Relied Too Much on Weak Typing (<any>)

- Parameter Mismatches

  - Constructors

  - Functions

  - Attributes, Setters/Getters

- Inadequate In-Line Annotations, Documentation

Identified Problems (2)

- Dependencies Lack Typescript Definition Files

    - Casinocoin Dependencies

        - Casinocoin-libjs-address-codec

        - Casinocoin-libjs-binary-codec

        - Casinocoin-libjs-hashes

        - Casinocoin-libjs-keypairs

        - Casinocoin-libjs-transactionparser

Identified Problems (3)

- Dependencies Lack Typescript Definition Files

    - Non-Casinocoin Dependencies

        - jayson

        - jsonschema

        - bignumber.js (update required)

        - assert-diff

        - eventemitter2 (update required)

Strategy #1 Recommendations

- Aggregate All casinocoin-libjs-* Libraries into a Monorepo

- Refactor All casinocoin-libjs-* Dependencies to Typescript

  - Manage All Libraries Using a Single Set of CLI Commands

- Complete casinocoin-libjs Deliverable

  - Update Non-Casinocoin Dependencies

  - Update/Add In-Line Annotations/Comments

  - Upgrade Tests Now Using Strong Typing

Strategy #1 Outcomes

- Typescript Future Proofs Support for Evolving ECMA Features

  - Never Need to Revisit Moving Forward

- Single Integrated "Workspace" Provides

  - Best Debugging/Testing DX

  - Increases Code Quality

- Friendly to API Evolution, Regression Prevention

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Strategy #2 Recommendations

- Manually Author Typescript Definition Files for All casinocoin-libjs-*

- Keep Each Library in their Respective Repo

- Complete casinocoin-libjs Deliverable

  - Update Casinocoin Dependencies

  - Update Non-Casinocoin Dependencies

  - Update/Add In-Line Annotations/Comments

  - Upgrade Tests Now Using Strong Typing

Strategy #2 Outcomes

- Typescript Refactor casinocoin-libjs Only

- Remaining casinocoin-libjs Dependencies are not

  - Typescript Refactored

  - Tests not Added/Enhanced

  - Annotations/Comments not Added/Enhanced

- Makes Multi-Library Debugging/Testing DX Challenging

- Not Friendly to API Evolution, Regression Prevention