Java Money and Currency API
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Summary

- This JSR will provide a money and currency API for Java, targeted at all users of currencies and monetary amounts in Java.

- The API will provide support for standard ISO-4217 and custom currencies, and a portable representation of a monetary amount.

- It will support currency arithmetic, even across different currencies, and will support foreign currency exchange.

- Additionally, implementation details surrounding serialization and thread safety are to be considered.
Why is this needed?

- Monetary values are a key feature of many applications
- The existing `java.util.Currency` class is strictly a structure used for representing ISO-4217 standard currencies
- No standard value type to represent a monetary amount
- No support for currency arithmetic
Challenges

- Keep it simple, but powerful
- Several usage scenarios - low latency applications, such as High Frequency Trading apps, high precision, financial calculations, simple web shops
- Precision - There are differing precisions for arithmetic, currency exchange, externalization and formatting. Precision may also vary depending on use case!
- Ensure interoperability in a multi-tier context
- Complex formatting (grouping, regional particularities, natural language support, multiple usage scenarios – display, technical, printout etc.)
- Formatting and access determined by other than a Locale, e.g., regions, territories or custom groupings
- Support for non-standard rounding rules
JSR Participants

**Spec Lead**
- Credit Suisse

**Expert Group Members**
- Stephen Colebourne
- Benjamin Cotton
- Jeremy Davies
- Tony Jewell
- Werner Keil
- Bob Lee
- Christopher Pheby
- Jefferson Prestes
- Arumugam Swaminathan

**Supporting this JSR**
- Credit Suisse
- Stephen Colebourne
- London Java Community
- Caxton Associates
- Goldman Sachs
- JP Morgan/Chase
- Werner Keil
New Schedule and Status

- Targeted to Java 9, parts (core) of it also for CLDC 8
- With back-port to previous versions

- Early Draft Review until end of March 2013
- Status:
  - Wiki updated
  - API stable until end of January
    - Discussions is focusing, consensus on several key points
    - Core abstractions stable
    - Extended areas (conversion, formatting) ongoing
  - SPIs stable until end of February
  - Work on EDR spec document also started in parallel
  - Running continuous build of Spec/RI code
References

- Wiki (java.net): http://java.net/projects/javamoney/
- Mailing lists: jcurrency_mail@javamoney.java.net
- Current Source Code: https://github.com/JavaMoney/javamoney

- JMaghreb 1.0 presentation: http://www.slideshare.net/keilw/jsr-354-money-and-currency-api-for-java
- Prezi of initial presentation: http://prezi.com/no48uqcsyhjy/jsr-354/
Appendix
Example of Solutions Identified

- Model `CurrencyUnit`, `MonetaryAmount` as interfaces
- Allow multiple currency *namespaces*
- Define basic arithmetic operations on `MonetaryAmount`, similarly to `BigDecimal`
- Encapsulate representation type for numeric part of `MonetaryAmount`:
  - Allowing different implementations for SE/ME
  - Allowing different implementations for different use cases
- *AmountAdjusters* allow amount manipulation not covered by the spec
  - Rounding is a special case of an adjustment
- Precision must be distinguished into
  - *Internal* precision used for arithmetic
  - *External* precision, when converting to other types, e.g. `float`, `double`
  - *Formatting* precision, for representing as `String`