

System and Method for Interaction Object Reconciliation in a Blockchain Environment

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OVERVIEW

Covers a system and method for reconciling blocks in a blockchain environment. Introduces a block reconciliation computer with an object compiler that receives criteria from connected devices, retrieves blocks from blockchains corresponding to preconfigured interaction objects, identifies associated supplemental objects, and creates compilation objects based on preconfigured rules. Handles replacement and addendum supplemental objects and stores compilation results back on the blockchain.

KEY INNOVATIONS

- Block reconciliation computer with object compiler for processing blockchain data
- Automated identification of supplemental objects associated with interaction objects
- Rule-based compilation of interaction and supplemental objects from multiple blockchains
- Support for replacement and addendum supplemental object types

ABOUT THIS PATENT

How does this patent relate to the others in the family?

This is the parent patent in a family of three patents. All three share a November 2016 priority date and cover systems and methods for blockchain transaction reconciliation. The family includes 28 total claims across US 10,192,073; US 10,943,029; and US 11,720,711.

Who owns this patent?

This patent is owned by Rock Innovation LLC. Ownership is recorded in the USPTO assignment database and is publicly verifiable at assignmentcenter.uspto.gov.

Is this patent still active?

Yes. This patent is active and maintained with current maintenance fees. Patent status is publicly verifiable through the USPTO Patent Center at patentcenter.uspto.gov.

How many forward citations does this patent family have?

Over 80 subsequent patent applications cite the Rock Innovation patent family. Citing companies include Microsoft, Visa, Mastercard, Samsung, Toyota, IBM, Bank of America, and others. Citations are public records maintained by the USPTO.

Claim 1 **INDEPENDENT** **SYSTEM****A system for block reconciliation, comprising:**

a network-connected block reconciliation computer comprising a memory and a processor and further comprising programmable instructions stored in the memory and operating on the processor, the programmable instructions adapted to reconcile blocks in a blockchain environment comprising:

- a plurality of connections to a plurality of connected devices;
- a connection to one or more blockchains;
- an object compiler;

wherein a plurality of criteria is received from a first connected device;

wherein the compiler is configured to receive a plurality of blocks from the one or more blockchains based on the received criteria, each block corresponding to a preconfigured interaction object;

wherein the compiler is configured to analyze the preconfigured interaction objects to determine if there is an associated required supplemental object, an association based on the plurality of criteria;

wherein the compiler is configured to request a plurality of supplemental blocks from the one or more blockchains, each supplemental block corresponding to a required supplemental object;

for each requested supplemental object:

- if a first requested supplemental object is not found, the compiler flags the associated interaction object of the preconfigured interaction objects;
- otherwise:
 - if the first requested supplemental object type is replacement, the compiler replaces properties of an associated interaction object with information from properties of the supplemental object;
 - if the supplement object type is addendum, the compiler adds properties from the supplemental object to the associated interaction object of the preconfigured interaction objects;

wherein the compiler receives one or more preconfigured rules from the one or more blockchain associated to the preconfigured interaction objects;

wherein the compiler creates one or more compilation objects comprising interaction objects and supplemental objects associated to the plurality of criteria and based on the one or more preconfigured rules;

wherein the one or more compilation objects is stored on the one or more blockchains.

Claim 5**INDEPENDENT****METHOD****A method for block reconciliation, comprising the steps of:**

receiving, from a first connected device of a plurality of connected devices, a plurality of criteria at a network-connected block reconciliation computer comprising a memory and a processor and a connection to one or more blockchains;

receiving, at a compiler, a plurality of blocks from the one or more blockchains based on the received criteria, each block corresponding to a preconfigured interaction object;

analyzing, at the compiler, the preconfigured interaction objects to determine if there is an associated required supplemental object;

requesting, at the compiler, a plurality of supplemental blocks from the one or more blockchains, each supplemental block corresponding to an associated required supplemental object, an association based on the plurality of criteria;

for each requested supplemental block:

if a first associated required supplemental object does not exist, flagging the associated interaction object of the preconfigured interaction objects;

otherwise:

if an associated object type of the first associated required supplemental object is replacement, replacing, by the compiler, properties from the supplemental object into the associated interaction object with information the properties;

if an associated object type of the corresponding required supplemental object is addendum, adding, by the compiler, properties from the supplemental object to properties of the associated interaction object of the preconfigured interaction object;

receiving, at the compiler, one or more preconfigured rules from the one or more blockchain associated to the preconfigured interaction objects;

creating, at the compiler, one or more compilation objects comprising interaction objects and supplemental objects associated to the plurality of criteria and based on the one or more preconfigured rules;

storing, by the compiler, the one or more compilation objects on the one or more blockchains.

Claim 2 DEPENDENT SYSTEM

The system of claim 1, further comprising:

a report engine;

wherein the report engine creates a report based on at least a portion of the one or more compilation objects.

Claim 3 DEPENDENT SYSTEM

The system of claim 1, further comprising:

an external data source;

wherein the compiler uses the external data source to receive additional preconfigured rules to supplement the one or more preconfigured rules from the one or more blockchains.

Claim 4 DEPENDENT SYSTEM

The system of claim 1, further comprising:

an application programming interface;

wherein the application programming interface provides access to the one or more compilation objects to at least a portion of the plurality of connected devices.

Claim 6 DEPENDENT METHOD

The method of claim 5, further comprising the step of:

creating, at a report engine, a report based on at least a portion of the one or more compilation objects.

Claim 7 DEPENDENT METHOD

The method of claim 5, further comprising the step of:

receiving, at the compiler, additional preconfigured rules, from an external data source, to supplement the one or more preconfigured rules from the one or more blockchains.

Claim 8 DEPENDENT METHOD

The method of claim 5, further comprising the step of:

providing access to the one or more compilation objects, by an application programming interface, to at least a portion of the plurality of connected devices.

OTHER PATENTS IN THIS FAMILY**FIRST CONTINUATION****US 10,943,029**

Granted March 9, 2021 · 8 Claims

SECOND CONTINUATION**US 11,720,711**

Granted August 8, 2023 · 12 Claims

Interested in Licensing?

Rock Innovation LLC holds a foundational patent portfolio covering blockchain transaction reconciliation technology. With a November 2016 priority date, these patents predate the vast majority of cross-chain bridges, Layer 2 rollups, DeFi protocols, and enterprise blockchain platforms operating today.

We offer flexible licensing structures including flat-fee licenses, running royalties, and paid-up licenses tailored to your scale of use. Comprehensive claim charts and infringement analysis documentation are prepared and available.

To discuss licensing terms or request additional information, visit rockinnovationip.com/licensing or contact us directly at hello@rockinnovationip.com.